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AUTHOR Rivett, B. H. P.; And Others
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ABSTRACT

Initial objectives of this pilot study were to: define the effectiveness and structure of administration in institutions of higher education; explore and identify measures of administrative effectiveness and structure; test the practicability of such definitions and measures against on-going processes at Sussex University; direct, coordinate, and analyze the results of small comparative studies at various European institutions for higher education. Comparisons are made between the systems approach and the behavioral approach. The systems approach is concluded to offer a practicable and profitable methodology that can realize all of the project objectives. Proposals for future research are offered, utilizing a research team with administrative experience and a set of participating institutions, which would determine the comparative effectiveness of alternative administrative structures. The full-scale continuance of the pilot project is advocated. The package for such an application would contain sets of departmental, administrative, and student questionnaires, an information sheet, and a new set of contingency studies. It is concluded that the behavioral approach needs further work for effective application. (LBH)

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PROGRAMME ON INSTITUTIONAL MANAGEMENT IN HIGHER EDUCATION

COMPARATIVE EFFECTIVENESS OF ALTERNATIVE ADMINISTRATIVE STRUCTURES

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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Programme on Institutional Management in Higher Education

COMPARATIVE EFFECTIVENESS OF ALTERNATIVE ADMINISTRATIVE STRUCTURES

Final Report
on a
Pilot Investigation

Project Supervisor : B.H.P. Rivett, Professor of Operational Research, The University of Sussex

Principal Researchers: C. J. Johnson
A. W. Palmer

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Second General Conference of Member Institutions (Paris 20th-22nd January, 1975).

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(Note by the Secretariat)

As the urge to improve collective living standard has steadily developed throughout OECD countries in the last 20 years, institutions of higher education have had to switch at short notice from a situation in which they provided training for an elite to a situation in which they are called upon to meet the needs and aspirations of a rapidly growing student population from widely varying backgrounds. Universities and other post-secondary institutions have therefore had to accept new objectives and roles which are uneasily poised between the scientific, cultural and pedagogical functions of higher education and research. This trend was bound to involve thorny problems for those whose responsibility it is to plan and control university development. The task of bringing the objectives of the university, with all the resources it has been assigned to discharge its traditional functions, into line with the functions arising from its new vocations is fraught with difficulties. All aspects of planning and institutional management in higher education have therefore become vitally important and have resulted in investigations and studies whose novelty and originality cannot be over-emphasized. But hardly has the university begun to become aware of its new vocations and responsibilities, at least in Europe, when it has had to face a slowdown in the demand for higher education accompanied by increasingly severe criticism of its functions in the community and a stagnation in the flow of national resources allocated to teaching and research. The convergence of these new developments has necessitated further intensive thinking and further efforts to devise new methods of management.

From its inception, the OECD-CERI Programme on Institutional Management in Higher Education has focussed on the solution of problems which undeniably arise from the fact that universities and other institutions were often ill-prepared for the task of managing the resources made available to them with the maximum efficiency. In its first stage (1969-1971) the programme set itself the task of showing how these institutions might learn to manage their resources more effectively by improving their decision-making procedures with particular regard to information systems, financial administration, the analysis of student flows, the use of premises, the organisation of curricula and syllabuses, etc.

The programme's initial objectives were achieved in the first instance through the specific studies and research conducted by the CERI Secretariat and subsequently by the investigations carried out by 8 universities - one in Denmark, France, Germany, the Netherlands, Sweden and Yugoslavia and two in the United Kingdom - which devoted their attention to one or more of the above problems. This task of exploration mobilised some 52 specialists and cost F.Frs. 1,700,000 of which over three-quarters were financed by the national authorities of the countries participating. Most of this work has been published by the OECD in the collection "Studies in Institutional Management in Higher Education".

An evaluation of the work done in the first phase of the programme was the main subject of a conference organised in November, 1971 which was attended by 192 participants from 21 OECD countries representing the universities, the government departments concerned and the main international bodies. Expressing the hope that this activity would be pursued, the Conference considered it advisable that :

(i) CERI should develop its functions in the field of information, co-ordination and training in university management and planning;

(ii) CERI should promote all activities likely to foster broader inter-institutional co-operation in research and investigation.

These discussions and recommendations led to the second phase of the CERI Programme on Institutional Management in Higher Education which is now characterised by the active participation of a large number of institutions of higher education (over 100) and particularly by an appreciable increase in the number of multi-institutional and multi-disciplinary research groups working on subjects of joint interest. In short, although the general objectives of the programme are the same as those which brought it into being, the experience acquired in the last few years has enabled it to improve its methods of work and adapt them more effectively to the requirements of its member institutions.

Since the initiation of the second stage of its activities, the programme's Secretariat, in co-operation with the universities and national authorities concerned, has endeavoured to encourage the establishment of research groups. For this purpose, a list of priority subjects for research and investigation on various aspects of management was drawn up with the assistance of a special group of experts and circulated to the institutions concerned. Those which then decided to join the programme were thus able to express their preferences as to the types of investigation in which they wished to participate. In practice, certain of the proposed subjects aroused the simultaneous interest of several institutions with the result that the latter formed a number of groups which were able to approach the problems not only more comprehensively but also in greater depth than a single isolated institution could have done. Three groups(1) were set up between the end of 1972 and the beginning of 1973 for periods of one to two years and it is their final reports which are now submitted for the attention of the participants in this Conference.

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(1) - Research group No. 1 : "Measuring student success : a systematic statistical analysis" (co-operation between two Austrian universities).

- Research group No. 2 : "Budget control procedures and methods for calculating unit costs of activities and outputs of higher educational institutions" (co-operation among 19 French, Belgian and Swiss universities).

- Research group No. 3 : "Study of the comparative effectiveness of university administrative structures" (co-operation among 20 universities).

At the First General Conference of Member Institutions of the programme in January, 1973, one of the two main themes for discussion was the effectiveness of university government and administration. This topic was chosen because it had been cited as a major concern of the members and, during the Conference, it quickly became apparent that very little, if any, previous research had been undertaken toward the development of concrete measures of effectiveness of administrative structures of universities and other higher educational institutions. Because of the overwhelming interest in this subject, the programme assigned a very high priority to initiating some research in this area, the results of which are reported on in this volume.

From the outset, the project was viewed as a pilot exercise and it was not foreseen that results which could be directly applied in practice would emerge. Rather, the project was divided into three distinct stages, each with rather limited objectives. The first stage, which began in May and ended in December, 1973, was devoted to :

- formulating workable definitions of effectiveness of administration in institutions of higher education;

- exploring and identifying a number of measures of administrative effectiveness and structure in such institutions;

- testing the practicability of such definitions and measures against on-going processes.

The project was carried out by a small team of researchers in the Department of Operational Research at the University of Sussex in the United Kingdom. At the outset two conceptual approaches were proposed, namely the systems approach and the behavioural approach, the methodologies and results of which are the subject of this report. Throughout the first stage of the project, consideration was given to the development of a methodology which would be applicable in a variety of national contexts and towards this end a small meeting of experts from different OECD Member countries was convened in Paris in October, 1973 in order to provide the research team with feedback as to the general applicability of the methodology under development to different institutions in Europe. The final part of the first stage of the project, which consisted of the development of a set of questionnaires to be tested in different volunteer institutions, benefited from initial tests at the University of Sussex.

The second stage of the project, which involved the application of the questionnaire materials in different European institutions, was launched at a formal meeting held in Paris in February, 1974 at which the methodology was presented for comment and subsequent revision. As a result of this meeting, 19 institutions agreed to participate in the case study phase of the project. The participating institutions were :

Belgium - State University of Liege, Catholic University of Louvain;

Canada - University of Quebec in Montreal;

France - University of Paris I (Panthéon-Sorbonne), Ecole Supérieure des Sciences Economiques et Commerciales (ESSEC);

Germany - University of Augsberg;

Ireland - The National Institute for Higher Education (Limerick), University of Dublin-Trinity College, University College, Galway;

Norway - University of Trondheim

Sweden - Linköping University, Royal Institute of Technology (Stockholm), University of Stockholm, University of Uppsala;

Switzerland - Ecole Polytechnique Fédérale de Lausanne;

United Kingdom - Harriot-Watt University, Lanchester Polytechnic, (Coventry), University of Essex, University of Strathclyde.

Each participating institution agreed to complete a package of questionnaires designed for the case studies. These questionnaires are published separately in the document entitled "Comparative Effectiveness of Alternative Administrative Structures: Annex - Case Study Questionnaires". The Secretariat of the programme and the members of the project team wish to acknowledge their gratitude to each participating institution for the valuable contribution made to this project. In addition, special thanks are accorded to a number of individuals who volunteered to participate in an Advisory Group for the project which assisted in coordinating the case studies in each country and provided valuable comments on the findings of the study. The members of this Advisory Group were : P. Almerelt, Linköping University; A. Duggan, University of Dublin (Trinity College); P. Immer, Ecole Polytechnique Fédérale of Lausanne; D.W.J. Morrell, University of Strathclyde; A. Quilliot, University of Paris I; D. Rex, University of Essex; R. Rouquairol, University of Saint-Etienne; R. Sensique, Catholic University of Louvain; M.D. Sommerer, Bavarian State Institute for University Research and University Planning; L.U. Thulin, University of Trondheim.

The final stage of this project consisted of the processing of the questionnaire materials received as a result of the case studies. The results of this analysis and proposals for future work are the subject of this report, which has benefited greatly from the comments made during a meeting of the project's Advisory Group in Paris in October, 1974.

The Secretariat wishes to thank the members of the Sussex project team which comprised Professor B.H.P. Rivett, who had overall responsibility for the project, and Dr. A.W. Palmer and Mr. C.J. Johnson, who were the principal researchers for the project. In addition, during the period February-June, 1974, Mr. P.A. Rose was appointed to assist with the analysis and interpretation of the results.

The necessary resources for financing the work done by the Sussex team were provided by the Shell International Petroleum Company Limited in the form of a donation to CERI.

FOREWORD

The note by the Secretariat outlines the way in which this particular work was conceived and something of the approach which was used. When we first started work in this area we had a humble feeling stemming from our own lack of knowledge about the formulation of something so nebulous as measures of the efficiency of an administrative structure. Indeed we realised that the classification of structures which would be a necessary first stage, was also something with which we, as a team, had no experience. Consequently our first approach was to survey the literature in order to see the extent to which other work could be both a guidance and a prop to what we were planning to do. As will be seen from the report which follows (particularly the first halves of II and III), the literature itself was not of much assistance in providing the structured quantitative approach which we were seeking. There is, of course, a great deal of work which analyses the relationships between individuals within an organisation and between these individuals as a group and the outside world. This work we found valuable in giving us a fabric of background knowledge against which our own approaches could be placed, but unfortunately there seemed to be no quantitative studies to help us. It might be thought not surprising that such work has not previously been carried out into the confusing and amorphous structure of Universities, but it did surprise us to discover a lack of research into similar problems in industry and government. There are many theories of organisations, and many people teach organisational structure, but so far as we can discover, very few have measured it.

It is not surprising, therefore, that this pilot project has not yet led to confident conclusions to which administrators in Universities may turn for advice. In reading this report we hope that it will be understood that we approached this problem in some diffidence, and although we did our best within the limited time and resources available, those resources have undoubtedly constrained the logical development of our work to the stage of methodological validation. Indeed, it is probably fortunate that the constraints of these resources meant that now the work is brought to a temporary halt and we can all stand back and look at it in perspective to understand its weaknesses and its strengths, and to indicate the way in which further work should proceed.

It is of the nature of research that in every research project there is a possibility of failure. Any endeavour which is assured of success is certainly not of a research nature. Equally, we have discovered during the work that it is not only necessary in this sort of research to be competent scientists, it is also necessary to understand that which is being researched. To this extent we found as the work progressed, an alarming gap in our knowledge regarding what administrators do and the way administrators work from the standpoint of the competent administrator himself. Our team would certainly have been strengthened by the addition of an administrator. This has meant that we have had to place great reliance and draw heavily on the patience of our administrative friends and colleagues in many institutions. To them we will always be grateful. However, even with all these reservations about the work, we do feel that certain conclusions can be drawn from it, and indications can be made of the way in which a successful methodology in this most difficult area can be established.

I/GENERAL INTRODUCTION

1. Orientation of Project

In its initial formulation, the project was very loosely defined. There was a general agreement among several members of OECD's Program on Institutional Management in Higher Education that some "investigation into the comparative effectiveness of decision making and administration in institutions of higher education throughout Europe" would be of interest.

In particular, before any major investigations were approved and initiated, it was agreed that a pilot project should be launched in an attempt to develop and establish a workable methodology along these lines. Sussex was assigned the task of executing this preliminary project, and the following program of objectives drawn up in consultation with OECD.

2. Objectives

The initial objectives of this study by the Sussex team may be summarized as follows:

(a) To define the effectiveness and structure of administration in institutions of higher education.

(b) To explore and identify measures of administrative effectiveness and structure.

(c) To test the practicability of such definitions and measures against on-going processes at Sussex University.

(d) To direct, co-ordinate, and analyse the results of small comparative studies at various European institutions for higher education.

(e) To assemble a final report on the project.

In particular, this being a pilot project, emphasis was to be placed upon determining the basic feasibility and value of the methodologies developed.

3. Methods of Approach

It must be stressed at the onset that two particular aspects of this study strongly influenced the way it was carried out. These were:

a) Its novelty
b) The production of new data via field measures

Given the time, personnel, and scale of operation, a) and b) were difficult to reconcile, and this was reflected in the somewhat ad hoc nature of the study.

Two methods of approach were finally adopted and these were termed the systems and behavioural approaches. To some extent they reflect individualistic approaches - but primarily they survived because (in principle at least) they were both necessary and complimentary. As with all organizations, the functioning of a University may be regarded as a system: but at the same time, given the absence of conventional outputs, the goals and consequent behaviour of individuals within it must also be taken into account.

4. Research Design

(a) The Systems Approach

This approach, perhaps over-simplistically, considers an educational institution as forming a single system operating within an external environment which imposes certain constraints upon its operation. These constraints may vary both cross-culturally and within a given culture, so that any systematic comparative analysis must take them into account.

Having considered environmental influences, it then becomes possible to intelligently study the internal processes of the institution. In particular, a systematic characterisation of administrative processes within the institution can be developed. Given such a basic catalogue of administrative processes, effectiveness is defined in terms of their collective facilitation.

In line with this conceptual foundation, four methods were employed to obtain the data necessary for the derivation of measures of administrative effectiveness and structure. A general information sheet provided data primaril regarding the environmental constraints and static structure of each institution. A set of "contingency studies" sampled on-going and dynamic administrative processes. Finally, both administrators and academics at each institution completed special questionnaires.

(b) Behavioural Approach

The difficulty of this (and any approach) is that there are no well established methods of measuring organisational effectiveness in general, and universities or any institutions of higher education in particular. Well documented attempts have been made, however, to isolate some factors which relate to the effectiveness of certain goal attainment methods (notably the work of Price), and it is these which were used as criteria of effectiveness. The behavioural approach relied on taking propositions of the general form; if an organisation has a certain degree of x associated with some function, then it is more effective than an organisation which has a less degree of x associated with the same function.

The propositions used were selected from a list (compiled by Price) on the basis of the variable x being both a relevant and measurable factor in the effectiveness of educational institutions. Allied to this of course was the establishment of some goal whose attainment depended to some extent on the use of x. The method relied solely

on the use of a questionnaire in which the academic staffs of various institutions were asked questions concerning the relative degree of x in their own departments. Thus if x, for example, was the factor 'amount of communication with the head of department', then an institution whose members reported a high degree of communication with their head of department was assumed to be more effective than one with a low degree of communication for this particular variable.

5. Organisation and Development

The Sussex team comprised Professor B.H.P. Rivett, who acted as a general overseer, Dr. A.W. Palmer and Mr. C.J. Johnson. In February 1974, a Research Assistant, Mr. P.A. Rose, was appointed to assist with the analysis and interpretation of the results.

Objective (a) above was summarised in the paper "Comparative Effectiveness of University Administrative Structures - Preliminary Proposals" published in the Phase 2 bulletin (No.5) of IMHE.

The next step, objective (b) was realised with the help of an informal meeting in Paris in October 1973 at which the Sussex team received invaluable feedback from European representatives. As a result of this meeting and the Sussex study (objective (c)), the methodology was finalised and presented at a formal meeting in Paris in February 1974.

This meeting was attended by institutions interested in carrying out comparative studies in co-operation with the project. At the meeting each institution was given a package of materials (which were available in either French or English) for completion according to an agreed schedule. Each package contained the following items:

10	questionnaires	"Departmental Procedures 1"
10	questionnaires	"Departmental Procedures 2"
3	questionnaires	"Administrative Questionnaire"
1	general	"information sheet"
1	set of	"contingency studies"

plus general notes and instructions, and a glossary of terms.(the first set of 10 questionnaires on the above list pertained to the Behavioral Approach, the remaining four items to the Systems Approach)

The contents of the packages are explained in detail later, and are exhibited as an Annex. Completion of each package was estimated to take at most 8 man-weeks of effort on the part of a Chief Investigator to be appointed at each participating institution. Research at each institution was to be concentrated upon a particular Department and Faculty as well as upon the institution as a whole. (For precise definitions of terms such as "Department", "Faculty" etc. refer to the Glossary provided in the Annex.) It was intended that, in so far as was possible, the Departments selected for special study should (i) contain both researchers and teachers (ii) be responsible for some organisation of teaching duties (iii) have a need for equipment in order to function properly. Accordingly, it was suggested that science Departments be chosen for study, but it was emphasised that neither this nor any of the requirements listed above were necessary for the investigation to be meaningful.

Response at this February meeting was most favourable, with 19 institutions volunteering to co-operate in the study. These are listed in the note by the Secretariat and can be seen to comprise 3 Irish, 1 Norse, 1 German, 2 Belgian, 4 Swedish, 2 French, 1 Swiss, 4 British, and 1 Canadian university. The various departments chosen by these institutions for the study comprised 4 in the field of Physics, 3 Chemistry Departments, 4 in Human Sciences (Economics, Social Science etc.), and 1 English Department.

Consequent to this meeting, an advisory body of administrators was set up to discuss and assess the merits and de-merits of the project, having particular regard to the possibility of further research. This body met in October 1974, and the Sussex team benefitted greatly from its evaluation of a preliminary draft of this report.

Another result of the February meeting was the adoption of several minor modifications in the methodology : these were circulated in a paper of corrigenda and clarifications. During the execution of the project (March-May 1974) site visits were made to many participating institutions by a Sussex representative for consultative purposes.

Objective (d) of the project was thus carried out, and this Report fulfills objective (e), so completing the project program.

II/ THE SYSTEMS APPROACH

C.J.JOHNSON

Summary

Administrative structure and effectiveness are defined in terms of systems-based concepts. Measures of these are introduced, and methods of deriving such measures are put forward. The scheme is applied to 19 institutions of higher education, and the results are presented and discussed. Prime emphasis is placed upon evaluating the methodology per se. In particular, proposals for future research based upon the methodology are formulated.

1. GENERAL ORIENTATION

In order to establish the intellectual orientation of this approach, illustrations are provided of the types of question which it is hoped the methodology will prove capable of clarifying and eventually answering:

> Can a realistic, cross-culturally and inter-institutionally applicable set of indices be devised whereby (a) administrative effectiveness and (b) administrative structure (in institutions of higher education) may be meaningfully measured, described, compared? Or do international and national variations in context effectively prohibit the possibility of such a general methodology?
>
> If the above proves practicable, can such methods be used to discover inter-dependencies between the structure and effectiveness of administration? Can causal relationships of practical significance be inferred?
>
> For example, does a highly centralised administrative structure tend to create more or less efficient administrative decision making? And what about the quality of the decisions taken? What effect does standardisation of procedures (a large number of written regulations) have upon the freedom of academics from administrative chores? Etc
>
> How multi-dimensional are "adminsistrative structure" and "administrative effectiveness"? Can a large number of apparently independent measures be reduced to a few, and if so, to what do these few cominations of measures correspond in practice?
>
> How are the basic dimensions of effectiveness and structure correlated?

Of course, this being a pilot project, the results do not provide complete answers to all, or even some, of these questions Rather, the results of this project provide guidelines as to how such questions could, in further research, become fully resolved.

Before presenting the methodology adopted and the results obtained, two important remarks concerning the general orientation of the project must be stressed:

(a) Throughout the study, the specific topic of cost-effectiveness has been excluded; partly because this topic is being investigated in its own right in a separate I.M.H.E. study, and partly to reduce the frame of reference of this project to less unmanageable proportions.

(b) Attention is deliberately concentrated upon the characteristics of administrative effectiveness and structure at the departmental level. (For precise definitions of terms such as "department", "faculty", "admininstrator", etc always consult the glossary of terms included at the end of the Annex.) This is in accordance with the intentions of those who instigated the project, and is supported also by the observation that it is within departments that the real "engine rooms" of higher education lie. These units contain the fundamental processes of

research and teaching upon which all educational goals are founded. In addition, it is at such levels that there will be the strongest basis for cross-cultural and inter-institutional comparisons: for at higher organisational levels, dependence upon political and social environmental factors becomes increasingly pronounced. Accordingly, it is argued that the project is not unduly biased in emphasing the perspectives of administrative processes seen from individual and departmental levels, given that the institution as a whole and its environmental context be taken into account.

2. METHODOLOGICAL PROGRAMME

In order to (a) meet the demands of the project programme (b) define the effectiveness of administrative processes (c) measure it at various institutions and (d) account for any observed variations in effectiveness in terms of difference in administrative structure, the following methodological programme was drawn up:

i. Present workable definitions of "administrative structure" and "administrative effectiveness" in institutions of higher education.

ii. Select particular measures of administrative effectiveness and structure.

iii. Devise methods for obtaining information about these.

iv. Devise a scheme for converting the information of iii. into the specific measures of ii.

v. Apply this scheme to a number of institutions.

vi. Examine for:

(a) Consistency and meaningfulness of the measures proposed.
(b) Correlations between such measures of administrative effectiveness and structure.

vii. Interpret results into practical statements and suggestions about administrative procedures and about the practicability and profitability of further research in the field.

In what follows the methodology as a whole is presented by working through each of the points i.-vii. in detail.

3. BASIC DEFINITIONS

The purpose of this section of the methodology is to provide a clearly understood conceptual foundation for what follows. In particular, it is essential to make explicit and precise what are connoted by the terms "administrative effectiveness", "administrative structure", and indeed "administration" itself. The key to the definitions that have been adopted for these three terms is the prior identification of all "administrative processes" within an institution of higher education. Initially, then, it is this identification which is discussed.

As is characteristic of any systems-based methodology, a whole institution, in this case a higher educational institution, is viewed as a single system operating within some external environment. (Of course this view is a simplification of the reality of many situations where, in practice, union and management links often effect a virtually indivisible merging of educational institutions into a nation-wide "multiversity". This concept could be developed in a more broadly based methodology, but such a generalisation has not been undertaken in the context of this pilot project.) This environment will impose certain constraints upon the operation of the organisation, and moreover these constraints may vary from institution to institution, and from country to country. Hence, no systematic comparative anaysis could be complete without some reference to these external constraints. In the case of institutions of higher education, it may be asked what form these constraints take. They are divided, roughly, into three main categories:

(a) Financial/physical
(b) Legal/political
(c) Social/competitive

Category (a) includes the most obvious and fundamental restrictions of capital and resources. Universities who can boast independence of such external dependencies are virtually extinct. Disbursements to universities may take many forms: institutional grants, specific grants, creation of professorial chairs, etc. In Europe, whatever the particular form of disbursement, it is usually some allocation of tax-payers money, and as such must be monitored at least to the extent of accountability. In crude terms an effective administrative structure must explicitly embody a system defining who is responsible for spending what.

The legal and political constraints consist of all those non-physical or "paper" rules according to which universities must function. This would include much more than is laid down in the universities own charter; for example, the government of institution/faculty/employee/student relationships is nowadays very much subject to general legal guidelines, while procedures for certain key appointments may be dictated by external political and legal directives. This is summarised by requiring an administrative structure to be not only financially, but also legally, accountable.

Although less tangible than the above, social and competitive constraints are very real restrictions on the operation of any modern centre for higher education. Perhaps this fact stems from the physical

dependency of institutions, departments and individuals upon competitive grant allocations, with the consequent need to "sell themselves". Or perhaps it stems from the inherently competitive structure of most educational and industrial processes, or perhaps from genuine aspirations to communication and progress on the part of academia. Whatever the cause, the effect remains: merely to survive, a present day university cannot content itself with mere stationarity. There is pressure for it to be progressing in fields of its own, and in such a way that this progress be valued outside the institution. Even in the realm of teaching, the syllabi of courses, and indeed the teaching methods themselves, must constantly be modified in order to keep abreast of current development. Little tolerance is given to reclusiveness, at all levels external accountability and communication is necessary. The chief burden of these constraints falls squarely on the shoulders of academics, and it is the task of administration to assist in this context.

Having thus delineated the major external forces influencing university administration, the discussion will now be concerned with the essentially internal processes of higher education. These processes will include such diverse activities as: student admissions, academic appointments, internal resource allocation (e.g. office space, laboratory equipment), construction of syllabi (when not externally imposed), examination scheduling, the provision and regulation of basic services, the physical and political co-ordination of faculties, departments, individuals, etc. There are several ways of developing the classification of such a list of functions. Three distinct methods, each of which will contribute to the understanding of administrative processes as a whole, appear relevant.

(a) By function. This method of classification adopts the usual higher educational categories such as financial, personnel, facilities, admissions, etc. It provides a useful classification of sectors within a given administrative block, but is too fundamental to give much vision of the subtleties of dispersion and delegation of task and responsibility.

(b) By political location. Here any particular process is classified according to where the responsibility for it lies: with central administration, or with a particular school, committee, department, professor, or academic. This classification has the advantage of relating the process in question to the administrative structure (and vice versa) but suffers from the difficulty that certain processes may be the responsibility of more than one political entity. Another anomaly may arise, namely that certain processes could be ill or vaguely defined in terms of responsibility. (Such a circumstance may be regarded as a fault in administrative structure and evidence of some ineffectiveness.) Note that the typology (b) is virtually a definition by description of administrative structure.

(c) Peterson's divisions. In reference 1, Peterson argues the importance of classifying the decision making processes of higher education according to policy, managerial, and operational categories.

These categories are extended to have reference to all facets of the administrative process. An administrative process is said to relate to policy when it is "concerned with a university's major goals and priorities, its general program for achieving them and its strategies for obtaining the resources needed to achieve them". Such processes are of the highest importance in that they involve the long term and total commitments of the institution and all its members.

Managerial administrative processes relate to "allocation of resources among programs. . . the co-ordination of their effects insofar as they are interdependent, and the mediation of conflicts between and among them". As such they are usually concerned with development and maintenance of programs as means of achieving policy. They may have either short or long term perspectives but generally involve only a part of the total institution.

Operational administrative processes relate to "the way in which program activities are carried out". These concern the basic operations of scheduling lectures, admission and appointment procedures, ruling for spending allocated funds (such as claiming travel allowances, hiring secretarial staff), arrangement and organisation of official functions and ceremonies, etc.

Within each of these three categories there is one further and fundamental division into decision-type processes and implementation-and-maintenance-type processes. One might contend that an effective administrative structure should maximise the involvement of faculty (and to a limited extent students) in the policy and managerial decision making processes while liberating them as far as is possible from the implementation-and maintenance processes, except insofar as these relate directly to their personal work.

How are the methods (a), (b), and (c) of classifying the basic list of administrative functions to be co-ordinated? The functional descriptions in (a) most directly involve measurable effectiveness, but any such measurements must relate to administrative structure (which (b) clarifies) and to faculty involvement (for which (c) suggest guidelines). Bearing these points in mind, the following systematic format for describing and defining the structure and tasks of a particular administration in a particular university is proposed:

i. A statement of the fundamental divisions of the institution and of the key administrative posts in each division.

ii. A statement of the political structure of each of these units and of the institution as a whole. (This would include references to committee structures, appointed representatives, etc.)

iii. A list, initially by general function, of the typical administrative responsibilities of each of these units. In addition, for a given general function, division is to be made into policy, managerial, and operational processes; and within these categories into implementation-and maintenance-type processes and decision type processes. For each of these final categories the delegation of responsibility is to be described. Special note would have

to be taken of ill-defined, vague, dual, or ambiguous responsibilities.

iv. Implicit in i. to iii. should be the satisfaction of the constraints of legal and financial accountability. This ought to be verified.

Operative definitions of "administrative processes", etc. may then be framed as follows:

— By "administrative processes" within institutions of higher education is meant all those processes included in section iii. of the methodological description above.

— By "administrative structure" is meant all those entities which are involved directly or indirectly in the execution of administrative processes (formal departments and sections, hierarchical structures, personnel, committees, decision rules, planning or budgetory cycles, etc., including informal procedures and arrangements—see note (f) below).

— "Administration" in an institution of higher education is understood to refer both to the administrative processes themselves and to the administrative structure contingent upon them. It is thus a general all-embracing term. (Note that the term "administrator" is not to be taken quite so generally—see the glossary at the end of the Annex.)

— The "degree of effectiveness" or the "administrative effectiveness" of an administrative structure in an institution of higher education is the extent to which administrative processes are collectively facilitated by that structure.

Without being over-precise or impractically theoretical, it is hoped that these basically common-sense definitions of terms provide a clear conceptual basis for the study. This section is concluded with some particular remarks about the definitions given.

(a) Of course, effectiveness (and indeed structure) are multi-dimensional, and although the final definition suggests the possibility of some overall or collective assessment of effectiveness, such a one-dimensional value would almost surely be an over-simplification of the reality of the situation. (Indeed, some of the facets of structure and effectiveness may not even be quantitatively assessable.)

(b) Positively defective elements in an administrative structure should become evident through the methodological description of the system: specifically iv. and the last part of iii. are oriented to this suggestion.

(c) In order to orient the study in accordance with the wishes of its instigators, a questionnaire was circulated at an I.M.H.E. meeting of persons concerned. Almost all comments and criticisms related to the academic/administrative interface. In the context of the discussion in this section, it should be noted that this interface is centred around

and radiates from the decision processes at operational, managerial, and policy levels. These processes are given special emphasis in this study.

(d) It is re-emphasised that all aspects of effectiveness relating to cost have been excluded from this study.

(e) Throughout the report, no distinction is drawn between the terms ''effectiveness'' and ''efficiency''.

(f) A well-established fact of organisational research[2] is that alongside every formal administrative structure there exist unique informal processes brought about and supported by personality, accident, convenience and habit. While the conceptual analysis developed has placed great stress upon formal administrative structure and procedure, as is implicit in adopting a Systems Approach, nevertheless it is intended to take some account of the importance and effectiveness of informality within educational institutions.

(g) How do the definitions formulated here tie in with the definitions adopted as the conceptual basis in the Behavioural Approach (section III of this report)? In the Behavioural Approach the organisation is not initially viewed as a wholistic system, but in terms of the varied individuals who are members of the institution. From these individuals is derived a concept of organisational goals which may or may not be concretely physical. The effectiveness of administration is then defined as the extent to which the goal achievements of the organisation are enhanced by that administration. In order to do this, administration will not necessarily attain such goals directly, but will act towards attaining certain ends which are really means towards greater ends. These are the ''operative goals'' of administration, and it is with the achievement and facilitation of generally accepted operative goals that the Systems Approach is concerned. Discussion of the institution's total goals is ignored: they are taken as given. For example, one (Systems) measure of administrative effectiveness is the extent to which academics are not occupied with administrative chores (this constitutes an operative goal), but no attempt is made to justify this by deriving it from the total organisational goal of academic freedom.

4. SELECTION OF MEASURES

In accordance with the conceptual analysis of the previous sections, the range of administrative measures chosen should give some coverage not only of administrative structure and effectiveness, but also of environmental situation. Anything less would not only be seriously incomplete according to the understanding developed, but also render the comparative effectiveness of differing structures more difficult to isolate. Perhaps effort would be wasted seeking an internal structural explanation for variations in effectiveness caused at root by the absence or existence of some external constraint. In this sense, then, a "Macro" set of measures/indices is requisite.

At this point the novel nature of the research and methodology envisaged created difficulty. There are no registers of appropriate measures already in existence to call upon, and a fortiori no standard techniques for obtaining estimates of such measures. Optimistically, however, a list of measures was compiled and these are presented in this section: their qualities and defects will be discussed in the general presentation of the results and conclusions of the methodology.

The methods employed by the author in compiling the list of measures were: (a) a search through the literature on administration and education, selecting recurring terms which appeared relevant in the context of this study, (b) a systematic approach to the important categories and factors developed in the conceptual analysis in 3, and (c) the asking of administrators for suggestions and advice, in particular at the Paris meeting in October 1973. By these methods, and with the following provisos, the final list of measures was drawn up.

Proviso 1. The project being a pilot project, and the research being novel, it is to be expected that the list of measures selected will have considerable shortcomings. But the methodology will have failed only when such shortcomings go undetected.

Proviso 2. Noting this, it would be prudent not to seek an exhaustive set of measures, but to aim at a broadly representative set of measures. That is, a few measures of as many different "types" as possible are sought. Thus there are a few structural measures e.g. centralisation, formalisation; a few environmental measures e.g. competitive climates; a few effectiveness measures e.g. adaptability; a few behavioural measures e.g. role specialisation, role specification; etc. (The resulting list could, of course, have been much longer.)

Proviso 3. As far as possible, the simplification provided by global measures has been pursued. For instance, the sub-division of standardisation of procedures into different components according to Department, Faculty, Central Administrative compartments has not been followed. Instead all components have been lumped optimistically into a single "standardisation" measure for the whole institution. The "success", or rather the usefulness, of such a lumped score vis-à-vis a set of

separate scores is quite fundamental, and will be discussed in greater depth later.

Proviso 4. Measures found or suggested which concerned aspects of cost effectiveness were excluded.

Limitations of time did slightly affect the scope of the list of measures compiled. Finer detail in the sense of 3 above would have been preferable, together with a somewhat broader range. Nevertheless, the proposed list did meet with the provisional acceptance of the administrators to whom it was presented.

The measures are divided into four classes: general, environmental, structural, and effectiveness measures.

A. General Measures

Centralisation of Authority

Originally, it was intended that there would be only one overall measure of centralisation. However, it was expressed with some force at the February meeting in Paris that the degree of centralisation of authority would vary consistently within different sectors of any institution. In particular, it was proposed that the single global measure be replaced by the four measures:

(i) Internal Departmental Centralisation
(ii) Internal Faculty Centralisation
(iii) Internal Centralisation of the institution as a whole
(iv) Centralisation (external) with respect to the national environment in which the institution is embedded.

The reasoning behind such a proposal was accepted, but a plea was made that these separate totals should nevertheless sum to a meaningful "overall (climate of) centralisation". Moreover, this overall measure seemed the type of simplification necessary in a pilot project. Notwithstanding, the methodology was amended to assess separate measures of:

(i) Overall internal centralisation within the institution
(ii) Centralisation (external) with respect to the national environment in which the institution is embedded
(iii) The original overall measure of centralisation

The motivations behind these particular divisions have been explained in some detail, since such a difficulty of choice between a general unidimensional measure and a small set of separate measures recurred throughout the compilation of the list.

Incidentally, by "centralisation of authority" is meant, of course, the concentration of decision making into one or a few people, and in particular away from those who implement the decisions taken.

The Involvement of Academics in Administration

This is a measure of the positive involvement of academics in administrative affairs, both physically and psychologically. However, the time spent merely on administrative chores (elementary repetitive tasks, no decision content) is not included here, but given a separate measure.

Confidence Between Academics and Administrators

Sub-divided into: confidence of academics in the goals and actions of administrators; confidence of administrators in the goals and actions of academics; and an overall measure if mutual empathy (co-operativeness and understanding) between administrators and academics.

Information Flows

Each of the following measures roughly assesses the frequency of use of and the importance of the relevant information channel: total information flow within academia; hierarchical information flow within academia; horisontal information flow within academia; total information flow within academia and administration; formal information flow between academia and administration; informal information flow between academia and administration; information within administration.

Friendliness climate

The general climate of friendliness within the institution as a whole.

B. Environmental Measures

Autonomy of the Institution

No distinction is made between this and the measure of external centralisation discussed previously.

External Competitive Climates

These are divided into measures of the extent to which the institution competes within its national environment for (i) material goods and (ii) academic status/prestige.

Flexibility of resources

The extent to which the institution is free to deploy its resources for purposes of its own choosing.

Environmental Supervision

The extent to which the institutions internal affairs are supervised from outside.

C. Structural Measures

Internal Centralisation (overall)

Already discussed.

Internal Competitive Climates

These are measures of the extent to which there is a competitive press upon the factions and individuals within the institution with regard to (i) Material/financial gain or subsistence, (ii) Academic status/prestige.

Formality, Standardisation of Procedures

This assesses the extent to which standard guidelines and written-down procedures exist throughout the institution as a whole.

Importance of Informality

This assesses the importance of informal procedures in the administrative functioning of the institution as a whole.

Role Measures

Three measures are used to assess the relation of the institution and its administration as a whole towards individuals. These are: role specification, the extent to which each individuals actions are prescribed; role specialisation, the extent to which each individual performs tasks which could only be performed by him; role pressures, the extent to which each individual is under psychological and physical pressures with regard to the tasks he is required to perform.

Sophistication of Management Technology

A measure expected to bear greatly upon administrative effectiveness. It assesses the sophistication of management technology in terms of computer use, planning methods, etc.

Unity of Administration

This measures the overall unity of the administration within an institution. Included in this one measure are psychological unity (the general esprit of co-operation and mutual understanding), procedural unity (the extent to which different sections of administration are formally and physically united, in terms of politics and building locations.

Unity of Academia

This refers to the unity of the particular Faculty and Department sampled at each institution. Included are psychological and procedural unity, formal and physical unity being taken for granted.

Committee Proliferation

Obviously very many committee measures could have been employed. This simplest of measures merely assesses the number, the frequency of use, and the importance of committee procedures within an institution.

D. Effectiveness Measures

Frustrations/Job Satisfactions

The following self-explanatory measures are used; frustrations of academics within administration, frustrations of administrators with

academics, academic job satisfaction, administrative job satisfaction.

Chores

The extent to which academics are occupied in routine, repetitive, and non-decision administrative tasks.

Effective Democratisation

The extent to which all members of the institution have a say in any decision-making which affects them.

Competitive Health

The extent to which administrative procedures (i) do not shield individuals from giving any account of themselves, and (ii) encourage contact between all facets of the institution and its environment.

Administrative Adaptability

The adaptability and flexibility of administrative procedures to individual contingencies.

Effectiveness of Committee Procedures

An assessment is made of whether or not individuals in the institution regard committee procedures as effective.

Overall Administrative Quality

Both subjective and (hopefully) objective estimates are made of this.

The Speed of Administrative Response

An assessment is made of this. It must be borne in mind that high speed does not necessarily imply good administration.

In addition, the following statistics were abstracted from the information sheet:

Sizes:
- S1 = total number of students (100's)
- S2 = total number of academics (10's)
- S3 = total number of administrators
- S4 = total annual recurrent expenditure (£1/10 m's)
- S5 = total number of students in Faculty (10's)
- S6 = total number of academics in Faculty
- S7 = total number of academics in Department
- S8 = total annual recurrent expenditure of Faculty (£1/100 m's)

Ratios:
- R1 = total number of academics/total number of administrators
- R2 = total number of students in Faculty/total number of academics in Faculty
- R3 = total academics remuneration/total administrators remuneration
- R4 = average academic salary x 10/average administrative salary
- R5 = total number of students in institute/total number of students in Faculty
- R6 = % of academics in science and technology

The dependence of other measures upon these was thus amenable to investigation.

5. METHODS FOR OBTAINING INFORMATION

The following items contained in the packages completed by participating institutions were written by the author with the Systems Approach specifically in mind:

A = Information Sheet
B = Departmental Procedures 2
C = Administrative Questionnaire
D = Contingency Studies

The questionnaire E = Departmental Procedures 1 was written by A.W. Palmer for use with the Behavioural Approach: nevertheless, the author accomodated the results of this questionnaire into the Systems methodology insofar as was possible.

(N.B. At each participating institution research was directed by a "Chief Investigator" whose responsibilities were to complete himself items A and D in the package, to ensure that items B, C and E were completed by appropriate personnel, and to maintain contacts with Sussex throughout. Details as to how each item was to be administered/completed were provided in circulated "Investigator's Notes". A glossary of terms aided interpretation. Research at each institution focused upon a particular faculty and department and their relations with administration as a whole.

Each of the items A - D was written

(i) To provide information about the functioning of the institution and its administration in the context of the environmental/internal classifications implied by the Systems Approach.

(ii) In particular, to present such information in a manner from which meaningful comparative measures of structure and effectiveness (as listed in the last section) could be obtained.

The rationale behind each item will be briefly discussed:

A. The need for factual information giving the institution's formal structure, basic statistics, environmental constraints, etc. is obvious. This is requested in the information sheet, which is considered to provide objective data and measures.

B. and C. A standard tactic in the measurement of organisational characteristics is the design and completion of appropriate questionnaires. In the questionnaires B and C, a format used by Hemphill[3] in his organisational research was adopted. Measures derived from such questionnaires must initially be regarded as subjective.

D. Here, nearly all investigative techniques employed in previous

research end: indeed the reliance upon responses to questionnaires has usually been total. Naturally, from a scientific standpoint, data that was freer of subjectivity would be preferred. To this end the Contingency Studies were designed as an attempt to obtain objective data as to the dynamic structure and functioning of the institution.

The Contingency Study technique begins with the identification of set contingencies which could be expected to happen in any institution of higher education, and which involve administrative response. Questions are then asked of the way administration would respond in practice, and answers to such questions would be a matter of researched enquiry (employing past records of the resolution of similar contingencies, interviews with relevant personnel, etc.). Unfortunately, the problem of formulating contingencies and querying response to them in a manner applicable to institutes of higher education throughout Europe proved itself to be a most difficult task. Accordingly, investigators were allowed to make minor alterations "adapting" each contingency to "fit" their own institution, and adequate room was allowed for qualifying comments at each stage in the evolution of a contingency. Because of such probable difficulties and because of the complete novelty of the technique, only five "sample" contingencies were drawn up. Ideally, contingencies should have been "sampled" from every administrative area of activity common to higher educational institutions. Particularly important omissions were necessarily made in this project (e.g. academic union activity), and completion of this part of the package was optional. Nevertheless, the response to this (hopefully) objective item in the package has proved more than encouraging, virtually every institution opting to complete it.

There was thus a modest battery of different methods for obtaining information about the measures sought. Which methods proved more profitable? Did each method provide similar results? These questions will be returned to when analysing the results.

6. CONVERSION OF INFORMATION INTO MEASURES

The manner by which the information contained in the completed packages was converted into the measures of Section 1 was a direct scoring process: a certain response to a certain question in a certain section of the package scoring negatively or positively towards relevant measures. Each measure is compounded by summing all such scores on particular responses. Thus far, the measure conversion process was "automatic", and was indeed performed by computer. Finally, however, slight adjustments were made to these automatic measures in order to take into account any qualifying remarks or special anomalies peculiar to individual institutions. (Throughout the entire package, ample space was allowed for such qualifying comments.)

Initially, the measures derived from each section of the package were kept separately. This provided some check upon the validity of each of the five individual methods of obtaining information, and upon the meaningfulness of the measures in general. Clearly, if the various methods yield significantly different scores for the same measure, this will indicate shortcomings in the methodology; and conversely. Measures exhibiting general agreement over the different methods could then be meaningfully agglomerated into overall scores.

Clearly the value of this almost naive scoring process depends upon the intelligence with which different replies to the questions are assigned scoring points. Unfortunately, the author lacks a sufficient depth of administrative experience to be fully confident in the assignation of scores. Nevertheless, the implications of the questions in terms of the measures were often obvious, and occasional interpretive ambiguities or errors should have little effect on the total score for each measure.

Nevertheless, this crucial aspect of the methodology must not be lightly glossed over: in any future application the precise scoring of measures should be vetted by experienced administrators.

To illustrate and clarify the scoring process, scoring keys relevant to the lists of statements in Departmental Procedures 2 and the Administrative questionnaires (see Annex) are exhibited in Table 2. (The reason these particular keys were selected for inclusion in this report is simply that the numbering of statements in the two questionnaires makes it possible to refer to statements individually without the presentation of any additional coding.) In these keys, the exact automatic scoring is given for each possible response to each of the statements in the questionnaires. A survey of these scoring keys in conjunction with the relevant questionnaires will greatly enhance understanding of the measures finally derived, both in terms of the interpretation placed on each measure by the author and in terms of the virtues and defects of the scoring.

In co-ordinating the scoring keys with the final measures obtained for each institution, it should not be forgotten that slight adjustments to the automatic scores were made in order to allow for qualifying

remarks etc. which could not be dealt with in a computer program. Also it is to be borne in mind that the scoring on the Communication Survey sections of the questionnaires is not given in Table 2.

The reader seriously interested in developing and applying the present methodology can obtain a set of scoring keys for the entire package from Sussex: these, together with the package itself, would enable him to apply the methodology of this project to any other institution. It is possible that the OECD will later print all the keys, but the author feels that such a step should await the implementation of the improvements and revisions proposed in this report.

7. APPLICATION OF THE SCHEME

The methodology presented in the previous sections was applied to the participating institutions listed in the preface. The organisational details of this application are described in the general introduction.

A prime difficulty proved to be the definition of basic categories and concepts in a sufficiently general manner to make them applicable in every institution, and yet also in a sufficiently precise and limiting manner for them to remain meaningful. To overcome this difficulty, a glossary of terms was included in the package. This glossary was discussed in detail at the Paris meeting of participants in February, and consequently a detailed clarification of certain terms was circulated. (The original glossary is included in the Annex.)

During the execution of the case studies, the author was able to visit several of the participating institutions and advise them about specific problems arising. By the beginning of June, the completed packages which had been returned to Sussex were ready to be analysed.

As a preparation for this task, each section of the package had been coded so that transference of replies into computer storage was possible. (Qualifying remarks, where applicable, were noted by a specific code number. Later such remarks were read through and appropriate adjustments to the scoring were made. Occasionally the interpretation of a qualifying remark was embodied in a re-interpretation of the reply given prior to coding.) Having transferred the replies to computer storage, programs were written to (i) print out the coded replies, (ii) execute the automatic measure conversion process and (iii) print out the measures so obtained. An example print-out is given in Table 3.

The measures thus obtained, with amendments taking into account pertinent qualifying remarks, were finally written into Table 1. (In this table, all measures deriving from the questionnaires were multiplied by a factor of 10: note then that these measures represent 10 times the average of that measure for the respondents from the particular institution.)

It can be seen from Table 1, and from the list of participants in the Preface, that 19 institutions finally participated in the project. This was greatly in excess of the number expected when the methodology was originally conceived. (In fact, the anticipated number was about 4 or 5.) As a consequence of this most encouraging response, the methodology has had (temporarily) to be reduced in scope, the reason being that the data processing itself has been a much greater burden than was allowed for. Explicitly, two modification have been made: (i) the full statistical analyses of the measures of administrative structure have been excluded; these specifically would have made some assessment of the hierarchical depths, horizontal spreads, and overall complexity of organisational structure within each institution. Both these points will be fully developed in further work, their exclusion applying only to this report. Herein, only the intended direction of such work is indicated.

8. RESULTS AND ANALYSIS

8.1 Introduction.

Before discussing the results obtained, and their significance, the reader is reminded of the nature of the results sought.

The first and foremost objective of this pilot project was "determining the basic feasibility and value of the methodologies developed". Viewed in this light, the results established will concern the qualities and defects of the methodology itself, and cannot be a presentation of the rigorous final conclusions of a proven methodology. No doubt this will frustrate the administrator seeking proven administrative conclusions. But though a discussion of the methodology per se may appear diversionary, it is to be emphasised that the novelty of the project necessitates concentration at such a level in this report. Nevertheless, as a concession to those wondering exactly what kind of administrative conclusions a fully developed methodology could yield, a section of tentative conclusions based upon the current results is presented.

In fact, the discussion of results is divided into three parts, the first being a general introduction to the contents of Table 1, the second comprising an analysis of the qualities and defects of the methodology per se, and the third drawing some largely speculative conclusions from the results now on hand.

8.2 General comments on results of Table 1.

The numerical measures finally obtained by the Systems Approach are summarised in Table 1. This table is the foundation for the analysis and discussion which follows, and in view of this importance a brief recap is given of how the table was constructed:

Replies to all sections of each completed package were coded and transferred to computer storage. Automatically, measures were computed on the basis of these coded replies. These printed-out measures were slightly adjusted to take relevant qualifying remarks into account, and then written into Table 1.

For a general orientation as to the institutions whose measures are tabulated, it is best to consult the last entries in Table 1, where each institution's basic statistics are given. (These are the statistics and ratios indicated at the end of II 4.) Here it can be seen that the participating institutions and departments varied enormously in size and budget, besides nationality. For instance, the numbers of students and academics in each institution ranged from lows of 200 and 50 to highs of 28,000 and 1,300 respectively, with intermediate intervals well represented. The number of administrators at each institution varied from 21 to 700, and, of course, similar variations in scale are reflected in all the basic statistics.

The "ratios" computed displayed some surprising variability, especially the ratios of academics to administrators. This ratio ranged from about 1 to about 20, and moreover this variability seemed little correlated with the degree of concentration on technological or scientific subjects. (A preliminary check with participating institutions suggests that such differences do reflect the reality of the situation rather than any misinterpretation of the term "administrator".) Variations in such structure are some of the differences which it is hoped to (eventually) correlate with differences in administrative effectiveness. For example, is variation in the ratio of average administrative salary to average academic salary reflected in the degree of co-operation between these sectors? Such questions will be returned to later.

As regards the sizes of the Departments chosen for the study, these contained between 6 and 36 academics, bar a couple of exceptionally large ones having 61 and 80 academics. In general, although there was appreciable variation in Faculty and Departmental dimensions, this was not as pronounced as the variation in Institutional dimensions. (This was anticipated since the definitions of "Faculty" and "Department" were much more restrictive than that of "Institution of Higher Education".)

Having purveyed the basic statistics, what can be said of the other measures derived by the Systems Approach? Regarding the completion of Departmental Procedures 1 and 2 and the Administrative questionnaires, it can be seen from the last three columns of Table 1 that response to these questionnaires was good. Most institutions completed all 3 copies of the Administrative Questionnaire, and at least 8 copies of both Departmental Procedures 1 and 2. The Information Sheet was completed by all but two institutions and, perhaps surprisingly, only one institution failed to complete the Contingency Studies. (However, institutes 12 and 19 submitted their Contingency Studies too late for inclusion in Table 1.)

This response to all sections of the packages was favourable, and so it was possible to fill in Table 1 with measures derived by the Systems Approach. These measures will be discussed in detail in the next section, but first a couple of general points are made.

An immediate observation from Table 1 is that most measures are considerably biased: that is, the scores for each measure on a particular section of the methodology do not usually centre around zero. This could easily be "corrected" by expressing each score as a deviation from the average for that measure, but it is not important at this stage: certainly in future applications scores would be so normalised and standardised. What <u>is</u> important at this stage is whether or not the differences between scores for various institutions are indicative of real differences between the institutions in terms of the measures being assessed. For example, consider the measure "Importance of Informality (in administrative processes)". It can be seen that scores for this measure on Department 1 Procedures 2 never turned out to be negative-

in fact they ranged from 0 to 328. Thus the measure has a positive bias, but since only differences in the measure concern this comparative analysis, the fact can be ignored. Statements of the type "institution 10 has less importance of informality than institution 6, according to Departmental Procedures 2" are all that concern the present inquiry. Incidentally, note that, with reference to this example, the figure 328 was far in excess of the next highest figure, and indeed depended upon replies from only three respondents: for these reasons it was dropped from the statistical analysis. (Such dubious figures are circled in Table 1.) Thus there is reduced range of scores from 0 (institute 4) to 130 (institute 16). Are the differences between scores significant and not merely random variations? This question is answered affirmatively in the next section.

A final point concerns the general use of Table 1. The previous discussion of some of the information contained in the basic statistics given in the table is by no means complete or exhaustive, but rather provides an introduction to the wealth of data presented. The reader is encouraged to study the contents of Table 1 independently of the text, since it is possible to verbally précis only a fraction of all the interesting information contained therein: and this remark applies not only to the basic statistics but to all the measures tabulated.

8.3 How well did the methodology work?

This discussion is divided into 4 parts, each analysing the qualities and defects of particular sections of the package. The order in which these sections are taken is Departmental Procedures 2, the Administrative Questionnaire, Departmental Procedures 1, and the Information Sheet and Contingency Studies.

(a) Departmental Procedures 2

Aside from the unavoidable difficulty of persuading any academic to complete any questionnaire, no significant problems arose with the administering or interpretation of this section of the package.

As regards the consistency and meaningfulness of the measures finally obtained, it can be asserted with confidence that the measures derived were successful with few exceptions. The justification behind such an assertion is best amplified by means of a particular example.

Consider the measure "academic involvement in administration". The scores of each respondent from institutions 4 and 16 on this measure were:

2, -20, 4, -34, -11, 13, 11, -21, 18

and

0, 32, 33, 32, 51, 57, 47, 41, 40, 16

respectively, giving overall (= average) scores of -4.22 and 34.9 respectively. (Thus the entries in Table 1 are -42 and 349.) Given the considerable variation of scores within each institution, there are two problems to be resolved. First, how many respondents are needed from each institution to ensure that the average score obtained is a reasonable estimate

of the institution average? And second, is the variation between institutions rigorously discernable over and above the variation within each institution?

To answer these two questions the statistical analysis outlined in Table 4 was undertaken. The rigorous conclusions of this analysis are summarised in (i) and (ii):

(i) At least 8 respondents from each institution are necessary to ensure the statistical stability of the derivative measures. (Ideally, one would require 12 respondents, but 8 could suffice.)

(ii) The success of each measure in assessing consistent and meaningful differences between institutions is given in the following list (see Table 4 for statistical validation):

Measure	Degree of Success
Centralisation (internal and overall)	Excellent
Academic Involvement in admin.	Excellent
Effective Democratisation	Excellent
Importance of Informality	Fair
Formality, Standardisation of Procedures	Excellent
Committee Proliferation	Good
Role Specification	Unsuccessful
Role Specialisation	Good
Role Pressures	Good
Competitive Health	Good
General Quality of Administration	Excellent
Unity of Faculty	Very good
Confidence of Academics in Admin.	Excellent
Confidence of Admin. in Academics	Excellent
Mutual Confidence and Co-operativeness	Excellent
Academic Job Satisfaction	Excellent
Academic Frustrations with Admin.	Excellent
Academic Chores	Excellent
Informal Information Flow, Faculty-Administration	Good
Formal Information Flow, Faculty-Administration	Excellent
Total Information Flow, Faculty-Admin.	Excellent
Friendliness Climate	Very good
Hierarchical Information Flow within Faculty	Good
Horisontal Information Flow within Faculty	Unsuccessful
Total Information Flow within Faculty	Unsuccessful
External Supervisions	Fair
Environmental Competitive Climate-Status	Excellent
Environmental Competitive Climate-Material	Very good
Adaptability of Administration	Good
Speed of Decision Processes	Good
Effectiveness of Committees	Excellent

Thus, with the exceptions of role specification, and horisontal and total information flows within academia, and the possible exceptions of importance of informality and external supervisions, the measures constructed by the questionnaire Departmental Procedures 2 displayed consistent variations between institutions. The measures are rigorous and meaningful. Conclusively, the questionnaire and its associated scoring processes "work", subject to the proviso of conclusion (i) above.

This section is concluded with three further observations on the results obtained from the questionnaire:

(iii) Only a few institutions indicated the level of each respondent to Departmental Procedures 2. On this little evidence, there was no indication that scores varied much from level to level within the same institution. More evidence, however, is needed to resolve this point.

(iv) A most interesting observation was a general lack of national tendencies in the final measures. Specifically, the range of scores on each measure was roughly the same for the Swedish, the French-speaking, and the United Kingdom institutions. (The reader can verify this by comparing the scores of institutions 3, 4, 5, 8, 12 (French-speaking) with those of institutions 6, 7, 11, 14, (United Kingdom) and those of institutions 10, 13, 15, 16 (Sweden) in table 1). This lack of evident national characteristics is no doubt due to the compounding of two factors. First, the wide variety of departments and institutions sampled within, specifically, the United Kingdom and Sweden. A wide range of scores for each measure may be expected to over-rule national tendencies. Second, the questionnaire is asking academics what they think of their institution. Replies are to be expected to be <u>relative</u> to the general status and running of such institutions within their country: if an English professor judges his institution to be highly centralised, in part this is no doubt because of a real degree of centralisation, and in part it is no doubt because national characteristics lead him to judge his institution in this manner. The extent to which measures obtained are independent of national relativities requires further study, the comparative data being, at present, not quite sufficient to establish <u>proven</u> conclusions.

(v) The previous point indicates the caution to be excercised in interpreting measures obtained. For the present, it is concluded that the questionnaire yields rigorous measures of certain <u>subjective</u> realities. What these subjectivities correspond to in practice should transpire from the other sections of the methodology.

These words of caution in no way diminish the proven success and potential of this section of the methodology.

(b) Administrative Questionnaire

The questionnaire Departmental Procedures 2 has been as successful as could have been anticipated. Can the same be said of the Administrative Questionnaire?

Without pursuing in detail the statistical analysis, the following conclusions are presented: Response to the administrative questionnaire was analogous to the response to the questionnaire Departmental Procedures 2. In particular, the deviation between respondents from the same

institution was so great as to necessitate at least eight respondents in order to ensure the statistical stability of the measures derived. Since only 3 of these questionnaires were circulated to each institution, it therefore follows that returns were insufficient to establish meaningful measures. Nevertheless, it is emphasised that, in sofar as it went, the response to the questionnaire was similar to the response of the questionnaire Departmental Procedures 2, and there is every reason to expect that the administrative questionnaire will be equally successful given a larger number of respondents per institution.

However, an increased number of respondents to this questionnaire will add difficulties of another nature: how can the class of administrators to be sampled be defined? Since administrative tasks and ranks can vary so greatly, a clear definition is needed on this point. Moreover, such a generalised class of administrators might imply some alterations to the questions and scores themselves. These difficulties should certainly prove surmountable.

(c) Departmental Procedures 1

Regarding the questionnaire Departmental Procedures 1, which admittedly was not written for the Systems Approach, the measures derived did not in general exhibit significant variation. It was disappointing particularly to discover that the hierarchical and horizontal information flows within academia did not show significant inter-institutional variation, although many of the questions were designed to provide information about these very dimensions. Moreover, although a few measures did display meaningful variation, three difficulties in administering the questionnaire lead the author to discard its worth for the present. First, there was a varied interpretation among respondents as to the intended meaning of "staff allocation". Most took this to be the assignment of given staff to different teaching roles. Second, many respondents left many of the questions "unanswered", especially in the cases of queries regarding the relative importance of various sources of positive and negative rewards and feedback. Often such blank replies must have implied an answer of "practically never", but there was no way for this to be ascertained. Finally, the measures derived from the questionnaire were built upon a paucity of raw information compared to that available in the other questionnaires. This is demonstrated by the fact that two data cards sufficed for each completed questionnaire Departmental Procedures 1, but four were necessary to contain all the information derived from each respondent to Departmental Procedures 2.

(d) Information Sheet and Contingency Studies

Having discussed the values of the measures obtained from each of the questionnaires, the measures obtained from the Information Sheet and Contingency Studies will now be discussed. In the use of these sections of the package, there was no multiplicity of replies from each institution to use as a check on the validity of the measures obtained. In theory, the answers to these sections of the package could not be subject to any variation: facts were sought, not opinions. Indeed, the intention here

was not so much to derive "measures", but rather to construct objectively exact "indices". Optimistically, these indices will turn out to be relevant practically and theoretically in describing administration within an institution of higher education. And even more optimistically, they should be correlated to the subjective measures assessed by the questionnaires.

Having regard to the Information Sheet, little difficulty was encountered in its completion, and the measures given in Table 1 were accordingly derived. Similarly, the scores from each of the Contingency Studies have been evaluated and tabulated.

Now, there is no doubt that such scores are rigorously derived indices. What is unproven is whether they constitute relevant, practicable, and useful composite measures.

Theoretically, the expectation is that the composite variables chosen should prove pertinent: for in practice terms such as "centralised", "highly democratised", "formalised", "prestige oriented", "materially competitive" are often used in describing institutions of higher education. All that has been done in the Information Sheet and Contingency Studies is to take a first and tentative step towards the construction of objective measures of these qualities, by summing specific practical realisations of these adjectives. What else is meant by a "high degree of formalisation" other than that the mechanics of administration usually follows formal rules? And how else is this to be measured other than by some summation of instances in which formal regulations define the actions taken? And how else are such measures to be made scientifically comparative unless the same set of instances are applied to different institutions? (This is not mere rhetoric, alternative suggestions will be welcomed at any future discussion of this paper.)

With this philosophy in mind, the Information Sheet was devised to provide an assessment of the extent to which the qualities measured were present in the static constitutional structure and environmental constraints of a particular institution, while the Contingency Studies attempted measurement of real-time dynamic processes. As has been mentioned, the Information Sheet did not cause any great difficulties, and a set of most interesting measures was produced. In a sense, the Contingency Studies may be judged less successful in that the "output" of measures for the "input" of effort in completing the studies was rather high: perhaps too high. A longer list of shorter studies would be ideal: failing this, it is still essential to increase the number of studies in order to obtain meaningful summed measures. For, looking at the Contingency scores in Table 1, it is at once evident that each institution showed considerable variations in the same measure on the different contingencies. Nevertheless, as a first step, the Contingency results are not to be regarded as unsuccessful. What has been demonstrated is that it is possible to devise a list of occurences common to institutions of higher education and to use such a list as a basis for objective comparative measures. To make full use of the approach, amendments and extensions are needed, but these should not be impossible to obtain. Finally, it is possibly worth remarking that the Contingency Studies were generally agreed to be the most stimulating and stretching sections of the research.

This concluded the analysis of the qualities and defects found in the first application of this methodology. In future applications, and with the revisions proposed in III 9, the methodology should yield definitive results of the kind tentatively put forward beneath.

8.4 Tentative Results

Having discussed the completion of the various sections of the package and their derivative measures separately, the results obtained will now be considered collectively. A natural starting point is a discussion of the extent to which the different sections of the package corroborated each other on the measures scored.

Although the withdrawal of Departmental Procedures 1 is recommended in future applications, it is of interest to consider whether the measures obtained from this questionnaire and from Departmental Procedures 2 corroborated each other. Within the admittedly broad limits implied by the inadequacy of the first questionnaire, this was indeed found to be the case (Table 5).

Similarly, the measures derived from Departmental Procedures 2 and the Administrative questionnaire were compared, and the results of this comparison were especially encouraging and interesting (Table 6). Here the basic limitation was the fact that only 3 Administrative questionnaires had been included in each package, resulting in uncertainties that further research should eliminate. Nevertheless, the results to these questionnaires suggest the following tentative conclusions:

The measures centralisation, formality and standardisation of procedures, effective democratisation, and role specialisation are seen independently by academics and administrators. On the other hand, quite naturally, the measures of: confidence of academics in administrators; confidence of administrators in academics; mutual co-operativeness and understanding between academics and administrators; involvement of academics in administration; academic frustrations with administration; role pressures; and overall friendliness climate within the institution; on all these there is general agreement between the academic and administrative sectors. Similar agreement is found with regard to measures: committee proliferation, the effectiveness of committees, the speed of decision processes, and the informal information flow between academics and administrators. Most worthy of note, perhaps, is that the measure of the general quality of administration (which had excellent success on Departmental Procedures 2) was equally assessed by administrators and by academics. And finally, there is the intriguing suggestion that a couple of measures may appear opposite to administrators and academics - in particular, competitive health and formal information flow between the sectors.

However, it is not to be forgotten that such thoughts are, at this stage, no more than tentative: given a wider- yet clearly defined - circulation for both questionnaires, they could become statistically proveable facts to be accounted for and made use of.

So much for the comparison of measures between the "subjective" sections of the packages. How do these measures compare with those obtained from the "objective" Information Sheet and Contingency Studies?

From Table 1 it can be seen that scores for each measure vary considerably from one contingency to the next, so that a larger number of contingencies is needed in order to make overall scores statistically viable. Because of this defect, few meaningful conclusions can be based on the present data. On the other hand, the Information Sheet was successful in yielding objective measures and indices.

Surveying the results obtained from the questionnaires, the Information Sheet, and the Contingency Studies, the following conclusions are tentatively drawn:

Although the measures derived from both Departmental Procedures 2 and the Information Sheet proved rigorous, it is observed that they do not corroborate each other at all well. For instance, there is close agreement on formality and standardisation of procedures, on both status and material environmental competitive climates, and on competitive health, but equally there are differences regarding internal centralisation, committee proliferation, and effective democratisation. It is suggested that the apparent differences in some of the measures is caused mainly by two factors:

(a) Departmental Procedures 2 yields measures acknowledged to be subjective. These subjective measures are based upon the opinions of members of a particular department, and will thus to a large extent depend on the relative situation of that department, within the institution, and upon the relative situation of the institution in its national context. Conversely, the Information Sheet's measures are based upon concrete objective facts regarding the institution as a whole. (According to this analysis, if Departmental Procedures 2 were circulated throughout the whole of academia, the resultant measures should be more closely correlated with those of the Information Sheet. The questionnaire was designed with this extended possibility in mind, and another fruit of a larger distribution would be an analysis of inter-departmental variations.) Thus real differences are expected between the measures derived from these sections of the package.

(b) Again, the Information Sheet is largely concerned with the static "constitutional" structure of the institution, whereas the opinions assessed by questionnaire are more likely to be formed from experience of on-going dynamic processes within the institution. (According to this analysis, the Contingency Study measures should exhibit greatest correlation with the questionnaire measures. Within the limitations of the pilot project, this appeared to be the case. Further work might firmly establish this result.)

According to the discussion in (b) above, not only are we to expect real difference between the Information Sheet and questionnaires, but likewise between the Information Sheet and Contingency Studies. Indeed, there is really no a priori reason supporting exact similarity be-

tween static and dynamic dimensions within any organisation. The results of this project do in fact support this analysis, the questionnaire and Contingency measures showing greater correlations between themselves than with the Information Sheet. One interesting agreement between Departmental Procedures 2, the Administrative questionnaire, and the Contingency Studies is the assessment of the speed of decision processes. If academics or administrators feel these to be fast or slow, it is encouraging to note that they do tend to be fast or slow respectively in actual contingencies.

From all that has been said, it can be seen that it is too early to derive significant facts from inter-correlations between different measures. But as a matter of personal interest, and to illustrate the type of conclusions further research might firmly establish, a couple of results based upon the evidence at hand are presented:

For academics, and more so for administrators, there was some indication that job satisfaction decreased as the size of the institution increased (although the same was not true of administrative quality). Also there was indication that the more autonomy an institution had with respect to its environment, the more centralised it tended to become internally. (Clearly, the splitting of centralisation at least into internal and external components is therefore necessary.)

Regarding the effect that administrators and administrative salaries have upon administration, the following was observed:

First, as the number of administrators per academic in an institution increased, so did the overall quality of administration as perceived by academics and administrators. Second, as the salary of administrators as compared to that of academics decreased, there was a corresponding drop in the confidence of administrators in academics and administrative job satisfaction, while the frustrations of academics and administrators with each other increased. (Can it be concluded that one should have a large number of highly paid administrators?)

The serious content of these last observations is the indication of the extent to which the subjective measures may be influenced by factors which preferably would be considered extraneous. Nevertheless, sufficient data should enable the statistical isolation of all factors affecting each variable.

These illustrative conclusions could be greatly expanded. Indeed, the relationship between any pair of measures can be assessed from Table 1. Since the number of such combinations of measures is great, no attempt is made at this stage to verbally describe all the results. Rather, it is left to the reader to peruse Table 1 to satisfy his interest as to the behaviour of and inter-dependencies between the measures finally obtained by the Systems Approach.

In the search for possible causal correlations between measures, it is not to be forgotten they are of considerable interest in their own right. The success of the methodology is not entirely dependent upon the existence or not of correlations, but rather upon the value of assessing an institution in terms of the comparative measures obtained.

9. CONCLUSIONS AND FUTURE DEVELOPMENTS

The Systems Approach has clearly realised all of the project objectives listed in I 2. It remains only to make an assessment of the feasibility and value of the methodology developed. It is the author's belief that the feasibility of the methodology is now established, and that an intelligently revised methodology will produce results both of intellectual interest and practical value.

It is clear from the successes of the project that statistically significant measures and results are derivable from the methodology: and it is argued that the experience gained from this pilot project provides a foundation upon which definitive and valuable studies can be based. But these claims will seem empty unless supported by concrete proposals for future research which specifically mention those modifications whereby the present shortcomings in the methodology will be overcome. This section is concluded with such proposals.

Before giving these proposals, however, the format of their presentation is discussed. How is "a future application of the Systems Approach" to be defined? Any such application pre-supposes: (a) a research team and a co-operating and co-ordinated and set of institutions; and (b) an agreed methodology.

Regarding (a), it is firmly recommended that the research team contain at least one experienced administrator. Note that the set of institutions participating need not necessarily be representative of different nationalities, since the methodology proved sensitive to differences within given countries. Cross-cultural comparison, while interesting and stimulating, is not a pre-requisite to successful application of the methodology.

Assuming (a) to be realised, what constitutes the "agreed methodology" of the Systems Approach? The invariant content or definitive characteristic of the Systems Approach is the methodological programme given in II 2. Given the existence of a research team containing (or having very easy access to) administrative experience, and given also a number of co-operating institutions, the methodological programme is taken as the basis for the specific proposals for future research:

Proposals for Future Research

Given: a research team containing (or with very easy access to) administrative experience, and a set of participating institutions.

Project: the comparative effectiveness of alternative administrative structures.

Methodology: the research team to execute the methodological programme given below, as described throughout the report on the Systems Approach, but with modifications along the following lines:

(i) Present workable definitions of "administrative structure" and "administrative effectiveness" in institutions of higher education.

Here two generalisations are recommended. First, the simplified conceptualisation of an institution as a single separable organisational

entity should be expanded towards a combined "multiversity/university" concept as suggested in II 3. Second, dimensions of cost-effectiveness should not be excluded from the definitions.

(ii) Select particular measures of administrative effectiveness and structure.

This most important section of the methodological programme must be re-worked. In particular, the less successful measures of the pilot project could be dropped, and cost-effectiveness measures, and others, (see (iii) (d)), added. Since the value and practical relevance of the final results will depend entirely upon the measures actually assessed, it is imperative that administrative personnel participate in the selection. One further recommendation is that some of the present overall measures be sub-divided into two or three component scores.

(iii) Devise methods for obtaining information about these.

Here the lessons learned from the pilot project have greatest application. Each section of the package is now discussed together with comments upon its success and suggestions for appropriate modifications.

(a) Departmental Procedures 1 was not designed for the Systems Approach and was unconvincing in the measures obtained. The author suggests this questionnaire be discounted.

(b) Departmental Procedures 2 was successful in deriving measures showing consistent and significant variation between institutions. However, it is to be born in mind that the measures obtained must primarily be regarded as subjective, although having their foundation in some objective reality. And, in future studies, it is to be remembered that at least nine or ten of the questionnaires must be completed to ensure statistical reliability in the derivative measures.

Interesting additions could be made to the statistical results already obtained. Suppose a dummy measur were "constructed" by randomly scoring twenty randomly selected statements on Departmental Procedures 2. Presumably this dummy measure would not exhibit the general consistency and meaningfulness of the "real" measures derived. Seeing if this indeed were true would test the genuineness of the conlusions made, which, incidentally, there is no reason to doubt.

In fact, the questionnaire is structured so that all kinds of ingenious things can be done to it. A cluster analysis[5] could be performed on all the replies to determine which groups of statements naturally fall together. This could provide the basis for an <u>empirically</u> built set of measures.

Even without such frills, there is a good case for the questionnaire having merit in its own right, completely independently from the other sections of the package. In particular, the questionnaire, if distributed throughout an entire institution, would not only provide general institutional measures, but also make explicit certain differences between Faculties and Departments. Accordingly, it is recommended that the circulation of this questionnaire not be restricted to one Department, but circulated within an entire Faculty, or even institution, among level 2 academics. (Perhaps inter-departmental variations will eliminate inter-institutional variations totally. This is unlikely, but proof is required in order that the questionnaire assert its full value.)

(c) Response to the Administrative Questionnaire was analogous to those of Departmental Procedures 2: but here the restriction to only 3 questionnaires per institution made statistical rigour impossible. Hence the need to distribute the questionnaire among more (at least 8) administrators. This introduces the problems of defining an appropriate class of administrators, and of possibly modifying the questions and scores to suit such a broader circulation.
(d) The Information Sheet was satisfactorily completed and yielded satisfactory measures, but full evaluation of the results was made impossible by the lack of rigour in other sections of the package.

A point to note is that little use was made of the organisational structure diagrams requested in the Information Sheet largely owing to lack of time. Certainly some measures may be added to the list on account of this data: in particular, measures of hierarchical depths and horizontal spans within the organisational structure are envisaged.
(e) The Contingency Studies were enthusiastically completed by nearly all participants in the project, and the results were of considerable interest. When thinking in terms of measures derived from the Contingency Studies, there is always present the security of knowing that ideally one has obtained an objectively verifiable (and thus scientific) index. Certainly, in terms of the content of the results obtained, these studies proved their worth.

However, one major drawback proved to be the paucity of information obtained fromthe effort put into obtaining it. Another, not surprising fact, turned out to be the variation of relative scores between contingencies. The latter difficulty is an observed phenomenon which can only be overcome by increasing the number and range of the contingency studies. Resolving the former difficulty requires that each contingency be "shorter". Hence the ideal recipe is a long list of short contingencies spanning all areas of administrative activity. If this is not feasible, then a long list of long contingencies is the only possibility. The rewards of such an extension of the methodology are to be balanced against the difficulties encountered: both are high. An exhaustive list of contingencies, and the associated lists of scores for the measure selected, not only should provide meaningful overall measures, but also a general picture of the distribution of such measures within component areas of activity. The meaningfulness and sharpness of such divisions of activity could then be precisely analysed: e.g. do Person's divisions[1] correspond to objective differences in areas of administrative activity?

Requisite for such rewards is a properly established catalogue of contingencies. It is not for the author to decide whether the building of such a catalogue is a task worth undertaking. However, in this pilot project the author believes that a foundation has been demonstrated upon which such a catalogue could be built.

Together with the modifications indicated above, it is recommended that the details of each section of the package be ammended or approved by administrative personnel.

As a final proposal regarding the methods of obtaining information, the introduction of a student questionnaire is recommended. This would provide a most pertinent addition to the Departmental and Administrative questionnaires.

(iv) Devise a scheme for converting the information of (iii) into the measures of (ii).

The scoring keys employed in this project on each measure and for each section of the package no doubt sufficed as first approximations. However, they were formulated by personnel without great administrative experience and need to be thoroughly revised by experienced administrators.

(v) Apply this scheme to a number of institutions.

The research team should be closely co-ordinated with the individuals carrying out the case studies.

(vi) Examine data for:

(a) Consistency and meaningfulness of the measures proposed
(b) Correlations between such measures of administrative effectiveness and structure.

It is pointed out that the statistical analyses undertaken upon the present data are far from complete. Specifically, further work to be done will involve the inclusion of some additional data, the co-ordination of the separate contingency scores into overall contingency measures, a more probing analysis of consistencies and correlations within and between the different measures and sections of the package, and an assessment of the validity, use, and method of construction of overall scores for each measure.

In future applications, having established a more intelligent methodology upon the foundations of this pilot project, the results obtained should be amenable to a truly complete statistical analysis. In particular, the use of principle component analysis to determine whether the gamut of measures proposed is reducible to smaller numbers of component factors is envisaged. Canonical correlation analysis would then yield the correlations between the most pertinent factors[5]. The physical "meaning" or interpretation of these factors and their correlations would be of considerable interest and importance.

(vii) Interpret results into practical statements and suggestions about administrative procedure and structure.

This step would be the task of the research team and administrators jointly, and would depend upon the results obtained.

The preceding set of proposals relates to the full-scale continuance of the project, and the "package" for such an application would contain

a set of Departmental questionnaires
a set pf Administrative questionnaires
a set of Student questionnaires
an Information Sheet
a (fresh) set of Contingency Studies

At a reduced level, research could still yield useful and interesting results. For instance, the Contingency Studies could be dropped: or the Contingency Studies could be dropped and the Information Sheet restricted to basic statistics; or it would be possible to proceed with questionnaires

alone: and as a final, least-effort, alternative, the Departmental Procedures 2 and the Administrative questionnaires could be given a much broader circulation as they stand, for they are already seen to be producing meaningful and interesting results.

Thus a full-scale committment is not necessary to ensure worthwhile results, although each omission will of course lessen the rewards of the work undertaken. In any event, the fruits of such research should be the construction of a rigorous set of measures and indices for each institution, together with the possibilities of discovering correlations and reductions in the measures obtained. Some of the measures selected may be expected to "fail", but this in itself would constitute a worthwhile education.

TABLE 1

MEASURE / INSTITUTE	external centralisation	Internal centralisation of institution									Overall centralisation									External material competitive climate			internal material competitive climate	External prestige competitive climate		
	A*	A	B	C	D1	D2	D3	D4	D5	E	A	B	C	D1	D2	D3	D4	D5	E	A	B	D2	A	A	B	E
1	12	4	-390	(-240)	-17	0	12	-1		-187	16	-390	(-240)	-17	0	12	-1		-240	-19	(-33)	2	8	5	40	-40
2	8	2	-83	-275	5	0	1	10		2	10	-83	-275	5	0	1	10		-28	-16	(-23)	2	9	11	60	-122
3			-178							-37		-178							-99		(-30)			3	70	-70
4	6	9	-11	-67	9			-12	-1	-56	15	-11	-67	9			-12	-1	-82	-18	(-31)		-9	3	60	-94
5	26	20	-196	63		12	14	0	-14	-38	46	-196	63		12	14	0	-14	-26	-31	(-32)	4	-2	-9	56	-73
6	8	9	-229	-217	5	3	10	18	5	-38	17	-229	-217	5	3	10	18	5	-76	-22	(-32)	3	3	9	4	-123
7	7	6	-56	-133	17	4			-5	-11	13	-56	-133	17	4			-5	-21	-19	(-18)	2	5	11	50	-91
8	13	9	-172	-227	5	-8	5	8	2	(40)	22	-172	-227	5	-8	5	8	2	(60)	-4	(-35)	2	-4	-2	55	(-160)
Very new 9	22	-2	-127	(-210)	5		-3	4	-3	-47	20	-127	(-210)	5		-3	4	-3	-23	-27			0	5		-87
10	34	5	-205	-320	18	14		4	19	80	39	-205	-320	18	14		4	19	85	-20	(-30)	-1	-11	-16	15	-118
11	22	7	-56	-230	7	15	2	10	20	-4	29	-56	-230	7	15	2	10	20	-46	-26	(-20)	-1	1	-1	-14	-118
12	24	8	-196	-77						-77	32	-196	-77						-68	-30	(-28)		-5	-19	26	-66
13	23	1	56	-167	10	13		11	-9	-10	24	56	-167	10	13		11	-9	-46	-17	(-9)	2	8	4	22	-138
14	7	12	-240	-143	13	5	-2	4	1	-36	19	-240	-143	13	5	-2	4	1	36	-13	(5)	-1	1	10	80	-94
15	28	0	-270	-37	12	6		3	10	0	28	-270	-37	12	6		3	10	-45	-20	(+40)	-1	-3	-4	100	-89
16			-317	-200	15	11		-3	19	-19		-317	-200	15	11		-3	19	-60		(-14)	3			34	-105
17	10	8	(-280)	-210	17	10		9	7	57	18	(-280)	-210	17	10		9	7	23	-21	(0)	2	9	6	(70)	-93
18	-22	18	-205	-40	-3	7	22	5		55	-4	-205	-40	-3	7	22	5		173	5	(-7)	2	-2	7	32	-83
19	24	4	-270	-40						+168	28	-270	-40						+218	-22	-23		14	-3	26	-62
20																										
NO. Q. = number of questions contributing	14	21	25	23						29	35	25	23						36	20	(1)		9	12	3	11

A* = Information sheet ; B = Departmental Procedures 2 ; C = Administrative Questionnaires ; D1 = Contingency NO. 1 ; D2 = Contingency NO. 2 ; Etc... ; E = Departmental Procedures 1

TABLE 1 (cont'd)

MEASURE / INSTITUTE	Internal prestige competitive climate	Flexibility of resources	Formality, standardisation of procedures									Importance of informality								Role specification							
	A	D2	A	B	C	D1	D2	D3	D4	D5	E	B	C	D1	D2	D3	D4	D5	E	B	C	D1	D2	D3	D4	D5	E
1	0	0	6	-170	(-100)	-8	2	0	12		-13	(328)	(210)	-2	2	10	18		93	-163	(-110)	-6	-4	-2	10		-13
2	0		11	6	-245	4	9	4	3		140	110	450	4	4		-12		-18	-74	-210	0	-2	2	0		100
3				18							140	6							-35	-98							122
4	-2		13	139	20	13			-3	-12	96	0	237	-1			6	4	-17	-13	-67	2			5	-2	73
5	0	2	9	4	53		15	3	8	2	90	96	77		2	-14		-7	-45	-78	47		3	2	1	2	87
6	-2	0	9	5	-47	2	8	4	14	6	66	128	447	4	-3	6	-4	-4	8	-102	-137	0	0	2	12	2	80
7	-2	-1	10	43	-67	11	8			10	75	73	290	6	2			7	-16	-75	-30	4	1			2	103
8	-5	5	8	230	-210	11	-12	4	2	8	(180)	47	533		10	1	-6	1	(-120)	102	-147	4	-4	2	3	2	(200)
very new 9	0		5	23	-80	5		-5	3	-10	50	47	(190)	4		22	-2	-1	-5	-83	-200	0		-2	2	-2	77
10	-2	-4	10	-18	-227	13	18		5	-2	150	28	378	1	-5		-8	-9	-90	-121	-250	6	3		7	2	80
11	-5	-5	12	101	-3	7	12	4	4	0	72	35	280	5	-2	5	-3	-1	20	-38	-37	2	2	2	-1	2	87
12	-5		6	-5	3						73	78	183						-3	-91	-40						102
13	0	-1	9	-50	-60	12	6		8	6	95	129	257	4	6		-5	3	-45	-63	-17	0	-1		7	2	62
14	-1	-3	10	25	-147	4	7	4	8	6	67	95	277	4		14	14	14	-25	-60	-110	0	2	2	14	2	99
15	-4	-5	9	154	60	14	11		0	6	140	26	327		-2		-1	4	-60	-66	80	0	2		-1	2	87
16		1		87	-190	14	6		2	6	120	130	335	2	0		5	-10	-40	-39	-105	0	0		1	2	91
17	0	-1	6	(-160)	40	5	6		4	-2	40	(110)	245	4	2		2	15	40	(-265)	95	0	-1		6	2	103
18	0	5	10	66	110	2	-9	0	8		-10	97	135	8	10	11	4		22	-56	120	-4	-4	-2	14		142
19	0		3	6	17						67	73	97						2	-67	60						97
20																											
	2		9	21	29						16	25	34						15	16	18						10

TABLE 1 (cont'd)

MEASURE / INSTITUTE	Role specialisation							Role pressures						Sophistication of management technology	nity of administration	Unity of academia				
	B	C	D1	D2	D3	D4	E	B	C	D1	D2	D4	E	A	C	B	D1	D2	D3	D4	D5
1	23	90	1	1		4	4	-297	-210	-9	-2	5	-127	-1	80	93	1	0	-10	9	
2	-17	-75	0	1			107	-127	-100	3	-2	-3	-5	8	140	165	2	1	-2	-10	
3	49						113	-194					-84			6					
4	28	-23	4				70	-23	-37	0		2	-53	4	143	99	-4			7	
5	62	-33		1			80	-170	-47		3	-1	-23	-2	110	-26		0	-26	0	13
6	1	-37	0	1		6	82	-216	-170	-1	1	5	-41	2	317	161	0	0	-8	-11	0
7	-25	-23	-1	1			123	-138	-170	5	2		-52	1	247	78	0	-1			13
8	-105	-27	0	1		2	80	-227	-133	0	-5	-1	100	1	187	172	-2	0	-8	-11	-12
very 9 new	47	10	-3				47	-153	-140	-2		-3	17	2	260	80	3		18	0	2
10	43	27	-3	1		6	114	-251	-240	6	3	-1	-55	-3	83	88	5	-1		4	-16
11	2	37	-3				117	-124	-137	2	1	-1	-90	5	133	62	7	2	3	-11	-16
12	67	-7					100	-175	-70				-92	2	97	48					
13	22	-13	-3			8	32	-67	-117	6	1	-1	-7	1	173	67	7	6		6	8
14	0	3	-3	1		8	85	-86	-87	6	0	5	-24	1	17	119	7	0	15	13	14
15	14	-47	-3				86	-64	33	4		-1	-18	-1	223	96	5	4		4	10
16	-1	100	4	1		2	111	-8	-55	4	1	-1	-55		15	228	-2	1		9	-16
17	35	-70	0	1			157	-290	-160	5	1	5	-107	-7	405	-70	4	1		8	-2
18	-17	5	0	1		8	138	-46	-40	3	-2	5	-32	5	260	144	2	0	-4	8	
19	-20	43					63	-90	-57				-148	-4	147	109					
20																					
	8	9					7	27	10				16	19	17	14					

TABLE 1 (cont'd)

MEASURE / INSTITUTE	Committee proliferation									Involvement of academics in administration								Confidence of academics in administration				Confidence of administration in academia				frustration of academics with administration	
	A	B	C	D1	D2	D3	D4	D5	E	B	C	D1	D2	D3	D4	D5	E	B	C	1/2	D3	B	C	D2	D3	B	C
1	12	52	(50)	-8	8	10	8		83	163	(110)	-6	-5	-2	16		23	336	(70)		2	110	(160)		2	-20	-10
2	10	-44	85	5	5		4		72	-48	105	2	-2		-17		17	165	120	-2		33	305	-2		-93	-45
3		-44							48	-53							-22	-12				-53				1	
4	1	-11	20	7			3	6	33	-46	7	0			12	0	-6	-113	-3			-54	50			77	17
5	2	8	+103		8	-4	5	5	3	152	27		-3	-15	3	9	-33	126	-27	-4	2	18	-113		2	-36	-10
6	8	-38	-7	-3	3	0	3	3	35	192	110	1	1	0	-18	-2	-10	206	143	1	2	52	427	1	2	-106	-60
7	8	-76	-70	1	4			3	8	114	87	2	6			9	-53	239	83	1		47	313	1		-139	-50
8	0	-15	13	3	-9	-4	3	2	(-40)	397	97	-1	-7	-7	-14	-2	(-40)	7	-3		2	-5	253		2	-40	-33
very new 9	12	-53	(130)	5			3	4	50	240	(90)	6		24	-4	0	0	173	(20)		2	70	(180)		2	-30	(-20)
10	1	-23	10	7	10		6	4	30	38	70	5	-5		-11	-14	-49	90	17			32	150			-67	0
11	12	-2	50	11	1	9	-6	6	23	217	83	4	4	9	-17	-12	-28	31	67		-2	-2	157		-2	103	-17
12	6	-54	10						13	81	7						-30	63	-23			3	-97			75	27
13	12	-53	97	8	6		5	3	35	-88	63	4	7		-3	4	-20	67	73			-14	190			-68	-37
14	0	7	7	7	1	1	8	4	-44	252	60	2	3	21	13	10	-75	117	17		2	38	137		2	-26	-23
15	10	36	93	7	5		7		34	144	97	2	2		2	3	-5	162	57			70	177			-122	-27
16		20	35	7	9		4	3	53	349	110	5	3		9	-14	-15	229	20	1		73	200	1		-90	-40
17	12	(-30)	35	9	1		7	4	37	(75)	130	2	3		1	3	-20	(-10)	85			(25)	295			(105)	-60
18	-3	2	85	-2	1	-4	4		-87	167	85	2	-5	-15	0		-113	106	45		2	-6	160		2	-59	-60
19	12	31	20						37	146	77						0	29	-7			34	187			31	10
20																											
	6	6	6						6	25	10						13	18	7			7	20			15	6

TABLE 1 (cont'd)

MEASURE / INSTITUTE	Information flow within academia							Hierarchical information flow within academia							Horizontal information flow within academia						Information flow between academia and administration						
	B	D1	D2	D3	D4	D5	E	B	D1	D2	D3	D4	D5	E	B	D1	D2	D4	D5	E	B	C	D1	D2	D3	D4	D5
1	23	0	1	-15	25		90	17	-1	-1	-13	10		-40	7	1	2	7		130	315	330	8	-3	8	2	
2	32	13	5	-2	-18		217	-8	6	-1		-4		155	40	1	2	-10		65	30	315	-3	3	2	-5	
3	49						139	19						37	30					102	-19						
4	32	-2			11	6	397	16	-1			4	2	150	17	-6		3		147	-72	93	-7			1	1
5	26		-2	-36	-3	19	203	2		-1	-8	-4	10	115	24		0	-1		88	168	100		2	0	2	1
6	25	4	0	-13	-10	8	245	-9	-1	-1	-13	-2	4	119	34	1	0	-6	-2	126	150	273	-1	2	13	-6	1
7	18	4	9			15	170	-10	1	1			10	80	28	1	0			90	124	243	4	5			
8	105	9	-3	-22	-17	-4	430	55	4	0	-4	-4	1	280	50	-3	0	-6	-2	150	130	207	-5	-3	10	7	1
very new 9	7	4		22	-2	-1	100	-13	-1		-9	-4	-1	110	20	2		0		0	143	170	-1		4	-7	
10	3	5	-7		-8	0	226	-7	6	-3		-8	-4	144	10	6	0	3	-2	82	53	260	4	3		-8	
11	22	16	2	-5	-13	-2	91	0	8	-1	-13	0	4	52	22	6	6	-6	-2	39	168	283	4	1	-15	-6	1
12	16						-70	0						-78	16					8	61	53					
13	39	21	11		-2	14	193	10	8	3		-4	4	75	29	6	4	7		118	21	220	1	7		5	1
14	22	15	1	30	22	4	285	-17	6		9	6	-6	165	40	6	0	8	4	120	173	197	-2	-6	11	-5	1
15	22	12	6		2	5	198	-2	6	2		0	1	131	24	6	2	1	2	67	162	213	2	1		5	
16	38	10	6		8	0	204	8	6	3		3	6	125	30	-3	2	4	-2	79	272	220	6	8		2	1
17	-20	4	5		5	-6	30	-20	1	-1		0	-6	70	0	1	2	8	4	-40	175	340	-1	7		-4	1
18	34	9	-8	-5	4		271	11	1	-3	-8	3		187	22	1	0	1		84	105	225	1	4	10	-1	
19	54						35	11						-112	43					147	136	173					
20																											
	4						30	2						20	2					10	14	15					

TABLE 1 (cont'd)

MEASURE / INSTITUTE	Formal information flow between academia and administration							Informal information flow between academia and administration							Information flow within administration					Mutual empathy between academia and administration						
	B	C	D1	D2	D3	D4	D5	B	C	D1	D2	D3	D4	D5	C	D1	D2	D4	D5	B	C	D1	D2	D3	D4	D5
1	103	(70)	-10		3	-1		270	(350)	-2		3	4		(50)	-2		2		377	(260)	-2	-1	1	2	
2	-25	90	-2	-2		-4		45	270	0			-4		190	2		2		152	340	0	0	2		
3	-47							-3												-31						
4	-34	23	-4			-2		-47	117	-4			-2		150	3				-138	73	-2				2
5	20	33			-2	-2	3	164	103		2	-4	-2		157		2		2	160	-30		3	5	2	2
6	21	50	0		3	-3		155	253	-2		4	-4		210					241	487	-2	3	5	2	2
7	33	40	2	3			2	99	247	5	2			2	127	2	2			248	367	2	2			
8	52	-7	-9		6	4		92	260	-2					183	-2				37	280	0	-1	5	2	2
9 very new	0	(50)	1		4	-4		173	(140)	-2		1	4		(100)					233	(240)	4		5		
10	5	53	5			-4		51	250	2			0		107				2	100	220	2	2		-1	
11	73	77	2		-6	-4		129	260	2		-6	-4		33					52	227	4	0	-2	2	2
12	-21	47						91	43						143					69	-50					
13	-37	73	1	2		2	2	41	187	0	2				120	2	2		2	51	277	4	4		2	2
14	81	7	0		3	-2	1	124	220	-2		3	-4	1	87			1		157	213	4	3	4	2	2
15	22	57	4			2		150	197						213					208	203	2	-2		2	
16	105	25	5	1		0		237	245	2			0		-45	2				286	205	4	4		2	2
17	(100)	110	1			-3		(90)	280	-2			-2		210					(40)	395	2	4		2	2
18	5	50	-2		6	-2		97	255	0			-2		95	2				106	250	0	3	5	2	
19	59	57						97	117						17					57	230					
20																										
	7	5						12	11						10					19	23					

TABLE 1 (cont'd)

MEASURE / INSTITUTE	Administration job satisfaction	Academic job satisfaction	Frustrations of administrators with academics	Academic involvement in administrative chores					Competitive health					Effective democratisation								
	C	B	C	B	D1	D2	D4	D5	B	C	A	D4	E	A	B	C	D1	D2	D3	D4	D5	E
1	(460)	283	(-70)	70	0	-1	1		-3	90	0	-1	17	7	30	(60)	-3	-3	-23	4		87
2	375	180	-225	-40	8	-1	-3		45	120	10	1	15	5	55	250	10	2	-6	-11		80
3		220		-47					69				7		128							39
4	250	287	-10	30	4		1	4	61	73	-7	4	-4	-1	79	-7	-6			8	7	57
5	-10	170	17	-16		7	4	3	34	87	-14	2	43	-5	76	-70		-5	-24	-6	16	32
6	660	378	-353	-5		-1	-3		21	150	2	-1	-11	4	141	43	-4	1	-16	-23	13	42
7	460	260	-217	-1	8	10		4	54	120	4		21	3	51	60	-4	7			17	2
8	403	235	-110	(157)	-2		-2		157	47	-7	-1	(20)	-3	23	20	6	-6	-25	-14	-5	(30)
very new 9	(350)	280	(-120)	50			-3		17	(90)	-2	2	-63	6	50	(50)	-9		-2	-9	4	27
10	327	328	-117	-95		-1	-4	2	-5	100	-14	2	-28	-4	149	67	14	-9		-6	-1	-20
11	330	236	-17	121			-1		14	133	-9	-2	-23	6	5	30	15	1	-8	-16	-1	10
12	193	249	140	60					26	57	-21		40	3	69	-10						13
13	373	130	-100	-40	9	7	-3	1	37	73	8	2	12	6	-53	27	17	8		-5	11	0
14	173	312	-27	101	1		-3	2	100	30	12	-4	70	-3	126	-20	14	5	18	-4	-13	19
15	317	298	-193	-22			-5		92	133	-8	2	23	3	176	-27	16	8		2	2	37
16	430	337	-200	123	8	-1			46	95		2	-20		147	115	9	11		0	-1	41
17	520	(335)	-210	(-15)		-1	-3		55	90	3	7	-18	6	(5)	35	0	0		-6	-30	0
18	370	232	-45	36	8	-1	-3		52	20	2	3	-50	-9	118	-15	2	-11	-35	-6		-48
19	353	239	-157	79					30	110	1		2	6	83	3				·		7
20																						
	27	18	20	10					10	9	17		19	6	13	5						23

TABLE 1 (cont'd)

MEASURE / INSTITUTE	Speed of administrative response							Adaptability, flexibility of system						Effectiveness of committees		Friendliness climate		Degree of supervision	Overall administrative quality					
	B	C	D1	D2	D3	D4	D5	B	C	D1	D2	D3	D5	B	C	B	C	B	B	C	D1	D2	D4	D5	E
1	-20	-70	4	4	-6	-3		-7	-20	2	4	2		-17	50	147	240	-97	27	-30	-2	2	1		40
2	-10	-30	6	-3		-10		17	40	3	2			22	20	107	260	-20	80	15		-2	3		33
3	-27							6						9		4		-41	22						40
4	-20	-40	8			-5	-2	-13	3	4			2	-10	43	79	63	-32	-46	-3	-2		3	4	30
5	-30	-10		4	8	-7	-2	12	27		4	2	1	12	67	46	53	-42	0	153			4	8	20
6	-6	30	16	1	6	-7		20	7	8	1	2	15	35	77	106	343	-68	182	227		4	1	8	28
7	3	43	6	3				14	100	3	2		9	32	50	95	283	-45	159	203		3		12	22
8	15	7	16		4	-3	-2	35	43	8	4	-1	12	65	7	85	250	-7	307	123	-2	-4	3	14	20
9 very new	-40	-40	16			-4		27	50	8		2	3	47	0	50	150	-57	103	110			5	2	33
10	-5	-3	12	4		-3		23	43	6			-1	43	57	58	123	-40	140	90		-4	1	8	13
11	-33	-50	-2	-2	-2	-1	1	-8	20	-1	2	-1	3	-47	33	69	143	-33	-66	117		2	1	11	26
12	-42	0						4	-17					-20	17	75	-3	-38	-58	83					41
13	0	-10	16	4		-6		17	7	8	2		5	22	-40	106	203	-7	95	47		2	2	12	27
14	-19	-37	16		-2	-6	2	0	-10	8	-2	-1	5	4	-30	87	143	-50	104	-53		2	-2	12	8
15	-12	13	16	8		-14		24	63	8	-2		5	60	93	106	227	-38	190	193		2	1	12	20
16	-3	60	16	3		-8	1	16	100	8	3		5	19	75	174	105	-66	216	175	-2	6	4	12	38
17	-15	25	0	2		-12	-2	-20	30	0	2		5	-65	35	-55	330	-85	-260	245		2	4	0	33
18	-4	-35	8	8	6	-3		20	-70	4	4	-1		27	-40	131	195	-64	54	75		2	-1		4
19	-4	10						0	60					-13	50	70	157	-23	39	170					33
20																									
	1	3						1	6					2	2	10	20	5	11	13					2

TABLE 1 (cont'd)

MEASURE / INSTITUTE	All from a :														Number of respondents		
	S1	S2	S3	S4	S5	S6	S7	S8	R1	R2	R3	R4	R5	R6	B	C	E
1	46	37	57	38		106	9		6		12	20			3	(1)	3
2	69	85	67	121	54	115	20	84	13	5	20	15	13	75	6	2	6
3															10		10
4	51	43		99	96	83	13			12			5	18	9	3	10
5	287	73	80	112	374	200			9	19			8	8	5	3	6
6	23	25	39	28	83	113	21		6	7	6	10	3	80	10	3	10
7	60	83	50	78	35	31	20	75	17	11	10	6	18	70	10	3	10
8	18	50	21	70			61	25	24		21	9		55	4	3	(1)
very new	2	5	22	3			9		2		3	13		40	(3)	(1)	3
10	237	130	642	151	714	181	25	243	2	39	2	10	3	33	6	3	9
11	31	55	30	36	69	150	19	70	18	5	22	12	4	58	10	3	10
12	147	116	719	469	276	170	80		2	16	2	13	5	38	10	3	9
13	56	65	35	117	31	42	11	30	19	7	20	11	18	21	9	3	6
14	20	30	48	29	47	84	36	42	6	6	5		4	46	8	3	8
15	189	130	450	223	100	200	28	388		5	4	13	19	70	5	3	9
16															10	2	10
17	34	18	36	18	48	69	6		5	7	7	14	7	60	(2)	2	3
18	7	15	77	17	70	155	21	172	2	5	2	10	1		8	2	9
19	25	27	288	99	85	93	29	117	1	9	2	21	3	48	7	3	6
20																	

TABLE 2

Example Scoring Keys

These scoring keys make explicit the automatic measure conversion processes written into the computer analyses of the responses to the statements in Departmental Procedures 2 and the Administrative questionnaires. In addition, adjustments were made to allow for significant qualifying remarks. Such adjustments are not indicated in the keys. Also omitted are the scores derived from the Communication Survey sections of these questionnaires.

Throughout the scoring keys, the following code abbreviations signify the measures indicated :

SC - internal centralisation of the institution
C - overall centralisation
SF - formality, standardisation of procedures
SIF - importance of informality
SRF - role specification
SRS - role specialisation
SRP - role pressures
SUA - unity of administration
SUF - unity of Faculty
SCM - committee proliferation
IF - involvement of academics in administration
CF - confidence of academics in administration
CA - confidence of administrators in academics
CCU - mutual empathy between academia and administration
IIFF1 - heirarchical information flow within academia
IIFF2 - horizontal " " " "
IIFF - total " " " "
IIFA1 - formal information flow between academia and administration
IIFA2 - informal " " " " " "
IIFA - total " " " " " "
IIAA - total information flow within administration
EFF - frustrations of academics with administrators
EFA - " " administrators with academics
EJA - administrative job satisfaction
EFA - academic " "
ET - academic involvement in administrative chores
EH - competitive health
ED - effective democratisation
ES - speed of decision processes
EA - adaptability, flexibilty of administrative response
ECP - effectiveness of committees
EVS - environmental supervisions
SFC - friendliness climate of institution
EQ - overall administrative quality

The measure conversion tables for Departmental Procedures 2, Table2(DP2), and for the Administrative questionnaire, Table2(ADMN), have exactly the same format and interpretation. In each table, against each measure is tabulated the numbers of the statements on which that measure is scored. If the statement number is tabulated under the column headed "2", then there is an actual score of :

+2 when response to statement is "Definitely true"
+1 " " " " " "Mostly true"
-1 " " " " " "Mostly false"
-2 " " " " " "Definitely false"

and 0 otherwise.

Analogously, if the statement number is tabulated under the column "-2", then there is an actual score of :

-2 when response to statement is "Definitely true"
-1 " " " " " "Mostly true"
+1 " " " " " "Mostly false"
+2 " " " " " "Definitely false"

and 0 otherwise.

The columns headed "4" and "6" respectively indicate double and treble the score indicated by "2" ; and the columns headed "-4" and "-6" respectively indicate double and treble the score indicated by "-2".

Examples :

(a) If the response to statement 49 of Departmental Procedures 2 ("I avoid all unnecessary contact with administration") were "Mostly false", importance of informality (SIF) would score +2, informal communication between academia and administration (IIFA2) would score +2, etc.

(b) If the response to statement 19 of the Administrative questionnaire were "Mostly false", standardisation of procedures (SF) would score -2, etc.

TABLE 2 DP2

Measure	Scores 2	-2	4	-4
C and SC	29,41,63,64,65,67, 69,87	2,9,12,14,40,41,70, 78,82,91	3,6,13,15,33,36,47, 73,74,77,90	1,4,7,32,11,59,60, 61,62,79,80
EVCCP			83,84,85	
SF	14,77,47,78	60,3rd,8th	33,63,61,65,67,73, 90,2nd,4th,7th,9th	18,74
SIF	60	63,64,90,2nd,4th, 7th,9th	17,19,65,69,71,74, 91,1st,3rd,6th,8th	33,49,50,56,73,80
SRF	14,65,66,67,74,77, 78,90	61,88	63,64,73	2,60,62
SRS	19,21,22	71	79	75,76,87
SRP*	14,64,66,77,85,73	13,15,61,82	29,63,67,81,83,84, 90,86	2,18,60,62,68,70, 79,80,89
SUF*	17,40,66,69,83		16,20,24,25,71,91	19,21,22
SCM			4,11,12,73,2nd,7th	
IF*	1,11,32,42,58,59, 65,67	47,50,55,57	4,7,9,14,44,45,63, 64,90	41,43,49,54
CF*	43,1st,3rd	13,41,48,54	42,45,52,55,58,59	31,49,50,53,57
CA	1st,3rd	41,50	46,51,59	
CCU*	43,41,1st,3rd	13,48,54	42,45,46,51,52,55, 58	31,41,49,50,53,57
IIFF1	69		66	
IIFF2			71,91	
IIFA1	46	13,54	11,32,56	41
IIFA2	46	13,54	42,43,44	41,49,47,50,56,57
EFF	10	43,52	12,14,31,35,37,39, 49,53	34,33,51
EJF*	1,2,60,61,62	15,	24,25,26,27,28,29, 69,79,80,82,86	72
ET*	12,65,86,90	2,41	10,63,64	13
EH	32,63,64,71,85,90, 91		83,84	70
ED	29,40,79,80	13	1,4,7,67	3,6,15,36
ES*				
IIFA	43	13,53,54	11,32,42,44,46	41,47,49,50,57
EA				12
IIFF	69		66.71,91	
EQ*	1	36,70	40,69	13,35,38,10,12
ECP*				12
SFC	91	19,21,22	16,17,20,43,69	57
EVCCM			81	
EVS	90	61,62,70		60

*See next page for 6,-6, scores

TABLE DP2 (cont.)

Measure	Scores 6	-6
SRP	65	
SUF	23	
IF		13,15
CF	51	
CCU	59	
EJF	30	
ET	14	
ES		35
EQ	34	37,39
ECP		10

Scoring on first section of Communication Survey :

Let the reply to index 'i' (see coding of questionnaire) be denoted by 'i'.
Thus '13' denotes the number of 'Informative, No Response' communications received from academics in the period of one week which fall into the 'official' category.
With this notation, we score as follows :

If (1 plus 3) ge* two times(2 plus 4) SF=6, SIF=-4
If " " (2 plus 4) and lt* two times(2 plus 4) SF=4, SIF=-2
If " " half of (2 plus 4) and lt* (2 plus 4) SF=-2, SIF=1
If " lt* " " " SF=-4, SIF=6

If sum of 6,7,8,9,10 ge* half sum of 1,2,3,4,5 EQ=-4
If " " " " quarter of sum of 1,2,3,4,5
and " " " lt* half sum of 1,2,3,4,5 EQ=4
If " " " " a sixth sum of 1,2,3,4,5 EQ=4

If (3 plus 4) lt* two times(8 plus 9) SUF=-2

ET=(16 plus 17 plus 18)

If (1 plus 2) lt* two times(6 plus 7) EFF=-4,CF=-4,CCU=-4
If " gt* four times(6 plus 7) EFF=2,CF=2,CCU=2

*ge means greater than or equal to,
lt means less than
gt means greater than

4. Measure Conversion Table, Administrative Questionnaire...

This table has exactly the same format and interpretation as the previous table (DP2). The foreword to that table is also applicable here, and it should be re-read in order to understand the following table.
Example : If the reply to statement 19 was 'Mostly false', standardisation of procedures (SF) would score -2.If the reply to the 9th question in the second section of the Communication Survey was 'Frequent', standardisation would score 2.

TABLE 2 ADMN

Measure	Scores					
	2	-2	4	-4	6	-6
C & SC	14,21,23	2,4,9,12,51 63,75,83,84	7,8,10,11,29 22,50,59,78, 91	90		
SF	8,22,50,59	0,36,38,3rd 8th	1,3,6,7,14, 17,18,19,21, 23,91,2nd, 4th,7th,9th	2,4,5,39		
SIF	5,9	1,7,8,14,17, 2nd,4th,7th, 9th	2,4,13,37,38 39,45,87,89, 1st,3rd,6th, 8th	18,21,22,23 60,73,74,91	36	
SRF	17	36	3,7,8,14,18, 19,20,21,23, 50	4,5,9	1,22	2
SRS	7	13,17,18, 24,25	26,27,40			
SRP	11,20		8,14,22,50	9,15,39	10	
SUA	13	27,28	24,25,32,33, 34,37,42	26,29,31,35 41	30	
SCM	12		75,83,84,2nd 7th			
IF	52,54,62,63, 84,90	59,61,66, 74				
CF	6th,8th	74	58,68,71	67		
CA	53,6th,8th	66	52,55,56,57, 62,63,68,72	64,65,67,69 73,74	71	
CCU	53,54,85	63,73,74	52,55,56,57, 58,62,68,71, 72	61,64,65,67 69,70	63	
IIFA	53,54,67,68, 72		52,58,84,90	59,61,69,70 73,74		
IIFA1	58	70	60,84,90			
IIFA2	59,68		52,53,54	59,60,61,70 73,74		
IIAA	6th,8th	41	37,45,25,13, 87	10,29		
EFF	70	62,63,68,71, 72				
EFA	66,81	53	64,65,67,69, 70,73,75,80, 86	55,62,63,68 71,76,77		
EJA	21,30	15,19,21,31, 50,67	9,16,34,42, 43,44,47,48, 49,72	17,18,20,22 23,41,46,61	51	
EH	16,52,58,87, 90	75,80		15,82		
ED		21	12	20,22,78E		
ES		75,79				77
EA		21		6,23,50,75	7	

TABLE ADMN

Measure	Scores					
	2	-2	4	-4	6	-6
EQ		23,31,78	30,00	75,77,79,81, 86	76	82
ECP				75		86
SFC	13,32,33,	31,41,64,73,74	25,34,53,62, 68,87,83,89	35,60,61,67		

Scoring on first section of Communication Survey :

Let the reply to index 'i' be denoted by 'i' (see coding of questionnaire). Thus '13' denotes the number of 'Informative, No response' communications received from academics in the period of one week and which fall into the 'official' category.
With this notation, the scoring is as follows :

If (1 plus 3) ge* two times(2 plus 4) SF=6, SIF=-4
If " " (2 plus 4) and lt* Two times(2 plus 4) SF=4, SIF=-2
If " " half of(2 plus 4) and lt* " SF=-2, SIF=4
If " lt* " " " SF=-4, SIF=6

If sum of 6,7,8,9,10 ge* half sum of 1,2,3,4,5 EQ=-4
If " " " " quarter of sum of 1,2,3,4,5
and " " " lt* half sum of 1,2,3,4,5 EQ=4
If " " " " a sixth sum of 1,2,3,4,5 EQ=4

If (3 plus 4) lt* two times(8 plus 9) EFA=-4, CA=-4, CCU=-4
If " gt* four times(8 plus 9) EFA=2, CA=2, CCU=2

If (1 plus 2) lt* two times(6 plus 7) SUA=-2

*ge means greater than or equal to
lt means less than
gt means greater than

TABLE 3

Example computer print-out of measures :

INSTITUTE 6
MEASURES DERIVED FROM ADMINISTRATATIVE QS.

NUMBER OF QUESTIONS CONTRIBUTING TO MEASURE.

OVERALL, FINAL MEASURE FOR INSTITUTE 6

RESPONDENT MEASURE	1	2	3	NO.Q.	DEV	AVG
ACADEMIC INVOLVEMENT IN ADMN	8	8	17	10	4.24	11.00
CENTRALISATION-INT + TOTAL	-19	-14	-32	23	7.59	-21.67
FORMALITY - STANDARDISATION	-9	7	-12	29	8.34	-4.67
ROLE SPECIFICATION	-18	9	-32	18	17.02	-13.67
IMPORT OF INFORMALITY	40	9	85	34	31.20	44.67
EFFECTIVE DEMOCRATISATION	11	1	1	5	4.71	4.33
COMMITTEE PROLIFERATION	-8	-12	18	6	13.30	-0.67
ROLE SPECIALISATION	-3	-3	-5	9	0.94	-3.67
ROLE PRESSURES	-20	-13	-18	10	2.94	-17.00
COMPETITIVE HEALTH	18	10	17	9	3.56	15.00
GENERAL QUALITY OF ADMIN.	35	15	18	13	8.81	22.67
UNITY OF ADMIN.	35	32	28	17	2.87	31.67
TOTAL INFO FLOW A-A	20	5	38	10	13.49	21.00
CONFIDENCE OF ACADEMIA IN ADM	14	7	22	7	6.13	14.33
CONFIDENCE OF ADMIN IN ACADEM	45	24	59	20	14.38	42.67
MUTUAL CONFIDENCE-EMPATHY	53	32	61	23	12.23	48.67
ADMIN JOB SATISFACTION	75	45	78	27	14.90	66.00
FORMAL INFO FLOW F-A	3	4	8	5	2.16	5.00
INFORMAL INFO FLOW F-A	21	16	39	11	9.88	25.33
TOTAL INFO FLOW F-A	21	17	44	15	11.90	27.33
ADMIN FRUSTRATIONS W FACULTY	-38	-25	-43	20	7.59	-35.33
FRIENDLINESS CLIMATE	42	13	48	20	15.28	34.33
ADAPTABILTY	5	-11	8	6	8.34	0.67
ACADEMIC FRUSTRATIONS W ADM	-6	-3	-9	6	2.45	-6.00
EFFECTIVENESS OF COMMITTEES	10	3	10	2	3.30	7.67
SPEED OF DECISION PROCESSES	6	-4	7	3	4.97	3.00

TABLE 4

Analysis of measures obtained from Departmental Procedures 2

The content of the following table is best explained by presenting the analysis for an example measure. The measure chosen for this purpose is "academic involvement in administration".

To ensure results of greatest statistical stability, attention throughout the analyses was restricted to those institutions which returned 8 or more completed questionnaires. For these institutions, the scores for "academic involvement in administration" were :

Institution	Scores	Deviation
3	-16,7,-29,0,-37,3,-12,5,22,4	17.06
4	2,-20,4,-34,-11,13,11,-21,18	16.97
6	28,-6,41,-2,35,54,19,14,3,6	18.87
7	-2,10,49,5,-4,-11,51,2,-20,32	23.33
11	38,26,15,-22,41,49,21,18,23,8	18.87
12	15,17,45,14,-4,13,-13,11,3,-20	17.21
13	-13,-9,-23,5,-29,-21,-12,-1,24	15.32
14	50,25,21,46,31,23,10,-4	16.54
16	0,32,33,32,51,57,47,41,40,16	15.98
18	33,5,-3,33,28,29,-24,29	19.82

The table of deviations on the right and the general score ranges clearly justify the application of analysis of variance to test for the significance of the observed differences between the average (overall) scores of each institution. Specifically, there being a grand total of 94 responses from the 10 institutions considered, an F-ratio with 9 and 84 degrees of freedom is computed. For the measure "academic involvement in administration", this ratio was found to be 5.31, a value significant at the 0.01% level ! Thus the rigour of the measure is conclusively demonstrated.

(Note. If the F-ratio is "significant at the x% level", this means that either there were meaningful differences in the measure between institutions or an event of probality x% has occurred. Thus in the above case, either the measure is meaningful, or an event has happened which normally would occur only once in 10,000 times.)

The table of results for each measure is given overleaf.

Measure*	$F_{9,84}$-ratio	Significance is less than :
Centralisation (internal & overall)	4.48	0.02%
Academic involvement in administration	5.31	0.01%
Effective democratisation	4.77	0.02%
Importance of informality	1.82	10%
Formality, standardisation	3.61	0.1%
Committee proliferation	2.61	2.5%
Role specification	1.46	----
Role specialisation	2.35	2.5%
Role pressures	2.60	2.5%
Competitive health	2.63	2.5%
General quality of administration	5.83	0.01%
Unity of Faculty	3.33	0.5%
Confidence of academics in administrators	4.47	0.02%
Confidence of administrators in academics	5.27	0.01%
Mutual confidence/co-operativeness/empathy between these sectors	4.92	0.01%
Academic job satisfactions	3.81	0.1%
Academic frustrations with administration	5.25	0.01%
Academic chores	4.52	0.02%
Informal information flow, academics-admin.	2.51	2.5%
Formal " " " - "	8.61	0.001%
Total " " " - "	3.98	0.1%
Friendliness climate	3.22	0.5%
Heirarchical information flow within academia	2.53	2.5%
Horizontal " " " "	0.44	----
Total " " " "	0.53	----
External supervisions	2.00	8%
Environmental competitive climate :		
Status/prestige	6.51	0.001%
Material	2.98	1%
Adaptability of administration	2.58	2.5%
Speed of decision processes	2.44	2.5%
Effectiveness of committees	3.64	0.1%

*See the main text for amplification of the measures listed.

TABLE 5

Comparison of Results between Departmental Procedures 1 and 2

Considering these sections of the package, it is asked to what extent the measures obtained from them agree, within the limits implied by the successes of the questionnaires separately. Unfortunately, these limits are too broad to give hope for proven corroborations between measures. Recall that ideally only institutions returning at least 8 replies to Departmental Procedures 2 should be incorporated into the analysis, and that Departmental Procedures 1 had but small success with its measures anyway. Nevertheless, on a speculative basis, the correlation coefficients[4] between measures obtained on both these questionnaires were tabulated, the hope being that these would tend to be positive rather than negative. This hope was indeed fulfilled :

Measure	Correlation coefficient[4] between measure on Departmental Procedures 1 and 2
Centralisation (overall)	+0.32
Environmental competitive climate - status	+0.38
Formality, standardisation	+0.36
Importance of informality	+0.65
Role specification	+0.49
Role specialisation	-0.32
Role pressures	+0.45
Academic involvement in administration	-0.18
Total information flow within academia	+0.27
Competitive health	+0.45
Effective democratisation	-0.05
Average	+0.27

The positive average correlation found is as much as expected, given the inadequacies found in Departmental Procedures 1.

TABLE 6

Comparison of Results between Departmental Procedures 2 and the Administrative Questionnaire

How do measures derived from Departmental Procedures 2 and the Administrative questionnaire compare ? Considering the fact that the completion of only 3 Administrative questionnaires was not enough to make the derivative measures statistically accurate, little significant correlation can be expected between similar measures. Additionally, some measures are likely to be truly different as viewed from within Administration and from within an academic Department. With these provisos in mind, the following table of correlation coefficients[4] between the measures of the two questionnaires was drawn up. It is based upon the replies from those institutions returning all 3 Administrative questionnaires.

Measure	Correlation coefficient[4] between measure on Departmental Procedures 2 and Administrative questionnaires
Formality, standardisation	+0.06
Effective democratisation	-0.08
Mutual empathy between academia and administration	+0.40
Competitive health	-0.41
Centralisation (overall & internal)	-0.10
Role pressures	+0.31
Role specialisation	+0.09
Committee proliferation	+0.18
Involvement of academics in administration	+0.41
Confidence of academics in administrators	+0.49
" " administrators in academics	+0.39
Academic frustrations with administration	+0.72
Formal information flow between academics & admin.	-0.44
Informal " " " " "	+0.19
Total " " " " "	+0.22
Speed of decision processes	+0.44
Committee effectiveness	+0.17
Friendliness climate	+0.31
General quality of administration	+0.42
*Importance of informality	-0.03
Role specification	-0.01
Average	+0.18

*The last two measures were judged "unsuccessful" on Departmental Procedures 2, and hence zero correlation coefficients are to be expected.

The tendency towards positive correlation is to be noted. Further research should make each of the above correlations statistically precise, and a proper analysis any anomalies could then be made. Given such an analysis, it should then prove possible to determine which measures are indeed capable of institution-wide generalisation, and which must be split into independent or dependent components according to different locations in the institution's structure.

REFERENCES

1. Specifically, a modified version of the conceptual framework developed by Peterson for analysing and classifying administrative processes in higher education has been adopted.
   PETERSON, M.W. - "Decision Type, Structure and Process Evaluation: A Contingency Model - Higher Education"
   Elsevier Publishing Company
2. BAKER, R. - "Administrative Theory and Public Administration" Chs.2,3
   Hutchinson & Co., 1972
3. HEMPHILL, J.K. - "Group Dimensions: A Manual for Their Measurement"
   Columbus Ohio State University Bureau of Business Research, Research Monograph No. 87
4. For a good elementary text explainig relevant statistical definitions and tests, see
   CHOU, Y. - "Statistical Analysis"
   Holt, Rinehart & Winston, 1969
5. For an explanation of these more advanced statistical concepts see
   HARMAN - "Modern Factor Analysis"
   University of Chicago Press, 1965

III/ THE BEHAVIOURAL APPROACH

A.W. PALMER

Summary

Effectiveness is viewed in terms of goal achievement. Teaching and Research are assumed to be prime University goals as viewed by teaching faculty. The survey data provided information relating to some specific methods of achieving these and related sub-goals. A comparison of the different emphasis used by the member institutions was made. The criteria for establishing the effectiveness of these methods was based upon the work of external organisational scientists. The validity of this approach in a University context was examined.

1. METHODOLOGY

1.1. Introduction

In order to understand the methodoogy behind the behavioral approach, the following point concerning the definitions and criteria of effectiveness must be considered: effectiveness must be viewed in terms of goal achievement.*1 From the outset this interdependence of effectiveness and goal achievement has been taken as axiomatic. That is, an organisation A is more effective than an organisation B if it realises more of its aims, objectives, drives, outputs than does B, all things being equal. If they are not equal i.e. the aims of one are only achieved as a result of increased costs, manpower, etc., then this qualification must result in the goals (here synonymous for aims etc.) being split up into sub-goals that can overlap. If they do not, then it it maintained that no comparison can be made. At the behavioral level the aims of the organisation as a whole are merely translated into those of the individuals comprising it. This is particularly relevant to institutions of higher education where it is more likely that individual goals and organisational goals are synonymous e.g. the advancement of knowledge.

The task in this instance would therefore appear to be to establish what the goals of a University are and to set up some criteria by which to measure the degree to which any particular Institution achieves those goals. From the pilot work undertaken in the present project it is quite clear that this cannot be done, at any rate not without a very sophisticated analysis both of the term "goals" and the term "University".

As was quoted in the O.E.C.D. Bulletin (Phase 2, No. 5 October 1973 P. 6) there is a paucity of information available concerning the "goals" of Universities. The reference quoted in the Bulletin, Gross, (see Ref. 1) attempts to redress this situation. Valuable though his findings are, one could not assume that the ranked order of his forty seven goals established for American Universities would necessarily coincide with those of European Universities. Nevertheless it did seem reasonable to assume that a small number of important goals of European Universities could certainly be included in Gross's established list of forty seven; and that a selection of the relevant ones could be made.

However, representatives of the member Institutions appeared unable to support this method of goal selection*2 and there was no significant response to a questionnaire seeking opinions on what the goals of institutions of higher education either are or should be.

This imposed severe constraints on the goal approach and also limited the choice of goals to those whose importance could hardly be disputed,

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*1 There are many works on organisations which emphasise the importance of the "Goal" concept in organisational analysis. For a comprehensive review of the problems and complexities involved both in "Goals" and "Effectiveness" see Ref. 6, Chapter 3. The following aptly sums up Hall's conclusions "The goal concept with the modifications we have discussed, is vital in organisational analysis...If the concept of goals is not used, organisational behavior becomes a random occurence subject to whatever pressures and forces exist at any point in time" (P.95). (For further discussion see O.E.C.D. Bulletin referred to overleaf)

*2 Discussion at Paris meeting of representatives of member institutions October, 1973.

even among members of widely differing European Institutions. As will be shown later, the two goals chosed - teaching and research - appeared to fulfil this criterion.

The second point, and perhaps this may be the most important of the whole philosophy, is best emphasised by the following question: By whose authority or by what criteria can we say that the methods, practices or results of institution A are more effective than those of institution B?

Certainly it is not the role of the investigators to act as judge or jury, so how does the project proceed?

The method adopted was to appeal to criteria that to some extent (albeit tentatively) have been established for non-educational organisations, where relative effect was easier (not easy) to measure; and to compare common sub-goals or practices even though the ultimate aims were different.

Of course sources of error are readily apparent here:

(i) The original criteria may not have been well established.
(ii) The overlap of certain methods or course of action may be insufficient when taken out of context.

The criteria chosen were the propositions established by Price [2] from both quantitative and qualitative studies of non-educational organisations. Some of the propositions which, it was assumed, could have some relevance to the teaching and research functions of educational institutions, have been selected, and these are now presented and discussed.

Proposition (DL)

Organisations which have a high degree of division of labor are more likely to have a high degree of effectiveness than organisations which have a low degree of division of labor.

In this context "division of labor" is taken to mean "the degree to which the tasks of a system are subdivided. In the University context it is pertinent to distinguish between "specialised division of labor" and "routinised division of labor": the former "may involve subdivision of the overall task of the organisation into specialised responsibilities that permit, and indeed require, greater utilisation of expert specialists"... ; the latter "On the other hand may entail the fragmentation of responsibilities into simple assignments with routine duties that require minimum skill" (Ref. 3). For the most part, it is "specialised division of labor" which would apply to Universities. It is necessary to add the qualification that routinised division of labor can create low morale particularly if high calibre employees are subjected to extremely routine duties.

It would seem however that in the teaching area, particularly at the higher levels, this proposition is a very applicable one. Generally one requires of teaching staff at Universities and Institutes of higher education that they be experts, or at least have some specialist ability, in

the subjects they teach. The extent to which an Institution's teaching departs from this principle can be regarded as a lessening of its teaching effectiveness. Relevant or associated features would include: lack of staff to contribute on current courses and the extent to which subjects are not taught because specialists anre not available. (For relevant questions relating to this proposition see Questionnaire Departmental Procedures 1, Sections A,B,C, given in Annex.)

Proposition (DRL)

Organisations which primarily have a rational-legal type of decision making are more likely to have a high degree of effectiveness than organisations which primarily have a charismatic type of decision making.

According to Price "Rational-legal decision making may be defined as the degree to which a social system allocates decision making to roles. Charismatic decision making may be defined as the degree to which a social system allocates decision making to specific individuals." (Ref 2, p.55).

Price then goes on to discuss the work of Caplow and McGee (p.14) which seems particularly relevant to this project. This discussion has been quoted directly, and at length, as follows:

"In order for any large-scale organisation to carry out a complex program, a great deal of power must be excercised. Decisions must be made, and men must be induced to carry them out. In most large-scale organisations, the distribution of power conforms, more or less, to a ladder of rank and authority and is supported by the formal assumption that rank and ability are closely correlated.

Caplow and McGee then indicate the difficulty of establishing the typical kind of power arrangement in universities:

This kind of arrangement cannot be established in a university faculty because of the double system of ranking. Academic rank is conferred by the university, but disciplinary prestige is awarded by outsiders, and its attainment is not subject to the local institution's control. Everyone in the university recognises, and almost everyone lives by, disciplinary prestige. Every academic rank includes men of enormously different prestige. Power cannot, therefore, be tied to specific positions in the form of authority, since such fixation would inevitably establish relationships of subordination and equality which were inconsistent with another set of social facts. Yet power in some form must be exercised or the university cannot function.

To tie power "to specific positions in the form of authority" is to establish a rational-legal type of decision making. Because of the "double system of ranking" in universities (by the profession and by the organisation), it is impossible for the university to establish fully the rational-legal type of decision making.

Decisions must be made and enforced; yet , the university cannot allocate the right to make decisions completely to roles. The university thus finds itself in a dilemna. According to Caplow and McGee:

The solution to this dilemna which has evolved in the American University is to let power lodge pretty much where it may. The fundamental device by which stresses in the university are resolved is a kind of lawlessness, consisting of vague and incomplete rules and ambiguous and uncodified procedures. Thus it comes about, for example, that no written or unwritten rules govern the details of selecting professional replacements in most of the universities in our sample. Within a single university, some new professors will be nominated by a chairman on his own initiative, others by the dean, others by a coterie of senior members, some by outsiders, some by formal majority vote, others by informal unanimous approval of the whole department or of its tenure members alone. This approval is ascertained, as the case may be, by individual consultation, casual conversation, or a scheduled meeting under parliamentary rules, and verified by a show of hands, a secret ballot, a signed ballot, or no ballot at all.

When a university allows "power to lodge pretty much where it may" it has not fully established a rational-legal system of decision making, because this decision making requires the strict assignment of the right to make decisions. This inventory assumes that deviant behavior is, more often than not, dysfunctional for effectiveness; however, before there can be deviant behavior, there must first be norms to which conformity is required. "Lawlessness" means the absence of such norms ("vague and incomplete rules and ambiguous and uncodified procedures") and, like the lack of conformity, probably indicates some reduction of effectiveness.

After again noting that "authority... is not tied to specific positions," Caplow and McGee comment upon the resluts of this characteristic of universities: "This system of loose-lying power helps to account for the extaordinary high incidence of conflict reported in the universities we studied and the widespread and passionate dissatisfaction of professors with the workings of academic government."
The system of loose-lying power is the university's lack of a fully established rational-legal type of decision making. In most systems, the norms prescribe cooperation rather than conflict; consequently, where there is an "extaordinary high incidence of conflict", there is probably a high amount of deviant behavior. "Widespread and passionate dissatisfaction" indicates low morale. "Therefore the University's low degree of rational-legal decision making appears to reduce conformity and morale".

A significant further elaboration of this complex situation occurs in Etsioni's comments on the function of charisma within complex organizations (ref 5) "The nature of an organisation's compliance structure is an important determinant of the amount of charisma required. Obviously the more normative power is relied upon, (as in Universities), the greater the need for moral involvement and the greater the need for charisma" (p. 210) "normative organisations require more such positions (charismatic) (all line positions or a relatively large group of professional middle-rank positions)" (p. 211).

The conclusion one must draw is that ideally for greatest effectiveness, in the specific instance being considered, a university should

assign decision making to roles occupied by charismatic individuals rather than individuals, and the degree to which they do so could form a basis for a comparison on effectiveness grounds. (For relevant questions relating to this proposition see questionnaire Departmental Procedures 1, Sections D, E, L, M.)

Proposition (C)

Organisations which have a high degree of communication are more likely to have high degrees of effectiveness than organisations which have a low degree of communication.

Proposition (CV)

Organisations which have a high degree of vertical communication are more likely to have a high degree of effectiveness than organisations which have a low degree of vertical communication.

Proposition (CH)

Organisations which have a high degree of horizontal communication are more likely to have a high degree of effectiveness than organisations which have a low degree of horizontal communication.

Proposition (CQI)

Organisations whose systems of communication are primarily instrumental, personal, and formal are more likely to have a high degree of effectiveness than organisations whose systems of communications are primarily expressive, impersonal and informal.

Explaining the above Notes - C, CV, & CH these are straightforward and self explanatory. Verticalcommunication being between superior and subordinate in either direction, horizontal communication being between peers.

CQI- Some definitions of terms is perhaps in order with regard to this proposition.

INSTRUMENTAL COMMUNICATION-the transmission of cognitive information
PERSONAL COMMUNICATION-the transmission by face to face interaction
FORMAL COMMUNICATION- official transmission of information
EXPRESSIVE COMMUNICATION-transmission of normative & affective information
IMPERSONAL COMMUNICATION-transmission other than by face to face interaction
INFORMAL COMMUNICATION-unofficial transmission of information

It must be noted that even a system which corresponds to that of the proposition will not neglect expressive impersonal and informal communication. Amongst academics a comparatively high degree of informal communication could still be effective provided that this is supported by formal confirmation.

In the teaching and research areas the above propositions are assumed to allow attempts at evaluation of effectiveness in the following ways:

(a) Institutions whose members have more frequent communication amongst themselves regarding teaching and research are more effective in pursuing the goals of teaching and research. The assumption is made here in fact that this proposition is more applicable to teaching functions than research

functions. (For relevant questions relating to this proposition see questionnaire Departmental Procedures 1 Sections F, N, R).

(b) Institutions whose sources of information in certain specified aspects of teaching and research are well defined and official, and take place via personal interaction with the people concerned, are more effective than institutions whose information sources cannot be so described. In particular this proposition is very relevant to feedback information, e.g. knowledge of one's teaching performance with a view to introducing change. (For relevant questions relating to this proposition see questionnaire Departmental Procedures 1, Sections G. O).

Proposition (SA)

Organisations which have a high degree of sanctions are more likely to have a high degree of effectiveness than organisations which have a low degree of sanctions.

Proposition (NE)

Organisations whose norm enforcer-norm conformer relationships are basically secondary are more likely to have a high degree of effectiveness than organisations whose norm-enforcer- norm conformer relationships are basically primary.

Sanctions may be positive, i.e. gratificational, or negative, i.e. deprivational. The existence of sanctions and the possibility of their enforcement enables other propositions to operate more effectively.

Within organisations composed largely of professionals the quality of the sanctions available will be of prime significance. The use of co-ercive enforcement would obviously be highly dysfunctional. At some levels of it, it may well be that Renumerative Sanctions could operate effectively but the link seems neither clear cut nor flexible and almost impossible to establish directly for teaching and research. For the majority of the members of a University the operation of sanctions will be more complex and indirect.

One may characterise the type of sanctions which will operate most effectively in the University situation as normative as Etzioni remarks (Ref.9) "organisations that serve culture goals must, for effective service of these goals, rely predominantly on normative compliance and not on other means of control". (p. 84).

While the imposition of sanctions is a possible method of achieving compliance, persuasive and normative power may be, as Etzioni indicates, far more effective in a university context. To the extent to which those employed in the organisation can be persuaded to identify with and concur with the values and norms of the organisation, the effectiveness of the organisation will be enhanced. Much of the literature on universities emphasises the problem that members of Faculty frequently identify with the values of their discipline and profession rather than with the university as an Organisation. There is a tendency for their primary committment to be to their subject. Thus the University as an Organisation needs to persuade its employees to adopt its norms.

The distinction between primary and secondary with respect to norm enforcer relationships requires elaboration. Price (Ref 2) " A relation-

ship is primary to the degree that it is diffuse, emotionally envolved, biased and governed by ascribed criteria. A relationship is secondary to the degree that it is specific, emotionally neutral, impartial and focussed on achieved criteria" (p.146) "Secondary relationships do not imply absence of personal contact. Price's example of a typical secondary relationship is that between doctor and patient. Thus secondary relationships are consistent with the view that "personal rather than official normative power tends to be more effective" (Ref. 6, p. 93).

For teaching and research purposes, the propositions would relate to the differences amongst the various institutes concerning the importance and source of the positive and negative rewards associated with these functions. For example, the assumption would be that an institution whose members received no positive rewards regarding their teaching activities would be less effective than an institution whose members received considerable positive rewards. Furthermore this assessment of effectiveness would also need to include the degree of importance of the source of rewards. (For relevant questions relating to these propositions see questionnaire Departmental Procedures 1, Sections F, H, J, N, P, Q,).

1.3 Methodology

Essentially the behavioral approach is suggesting that the relative differences between institutions regarding their effectiveness can be attributed the relative degrees in which they achieve their goals. Certain procedures and practices are associated with goal attainment, and acceptance of the propositions enables some criteria to be set up for judging how successful these procedures and practices are. Of course no absolute values can be assigned but the general principle of ranking was as follows.

Institutions were ranked according to what extent their practice regarding some matter was in agreement with the related proposition. Often, however, this was linked to how important the institution felt that some variable of the proposition was. For example, regarding teaching performance, a well-defined feedback procedure was assumed to be more effective than a haphazard one. So an institution A which classed students an an important source of information and had a well-defined procedure for receiving this, would be classed as more effective than B if B's procedure was less well-defined than A's. This would still apply if B's procedure was as well-defined as A's but B did not regard the source as important as A.

Thus it can be agreed, for example, that a component of effective teaching is to have a number of specialist staff available. Then two institutions who agree on the importance on the availability of staff but who differ in their actual availability can be directly compared in terms of effectiveness on that particular issue, and on that issue only.

This example illustrates how no further summary of its results can be made, beyond that which is given in the report.

Another consideration is to what extent is the expression "institution A's practice, opinion etc.", meaningful? The number of respondents

per institution ranged from three to ten, the average being eight. On a representative basis, if less than 50 per cent of the respondents from any institution failed to comment on a topic, it was assumed the institute could not be represented. For any category to be classed as representing an institution's reply at least 75 per cent of the respondents had to agree to that category. If 60 per cent or more (but less than 75 per cent) of the respondents replied in a certain category, all statements concerning an institution were qualified by the term 'majority'. The term 'about equally divided' between two categories meant that either category contained more than 40 per cent but less than 60 per cent of the respondents opinions. In many cases five or more categories were combined and in some cases they were ignored, being included in the questionnaire in order to avoid the methodological error of 'failure to state alternatives'.

Of course many combinations are possible and the conclusions given represent only some of the major orderings relating to the relevant proposition.

When rankings are given, institutions of equal status are enclosed within brackets, the most effective institutions being stated first. For example, (I_x, I_p); (I_a, I_d, I_f); (I_n); $(I_1, I_s...)$ where I_x, I_p are more effective than I_a, I_d, I_f etc.

It is important to note that as only an ordinal scale has been used, 'differences' between successive brackets can only mean 'bigger than' or 'less than'. It is not possible to say by how much these differences are.

In any case it is clear that some of the criteria mentioned above have a subjective interpretation regarding in which order the degree of prior items should be placed, and strictly this ordering would require verification at least by some general consensus. Furthermore given the small numbers involved the percentages themselves cannot be regarded as truly representative and have to be viewed in the light of what 'would' be done in a large scale operation.

1.4 Example

Replies to table 3 of the questionnaire showed that institutions 2, 3, 12, 15, 16 used students either very much or often (that is 75 per cent or more of respondents replied in these categories): and that the majority (i.e. between 60 per cent and 74 per cent) of institutions 4, 5, 6, 7, 10, 11 used studetns either very much or often. Thus the former set of institutions would be regarded as using this particular source more than the latter. Now th proposition is that an information source which follows a well defined or formal procedure is more effective than one which is haphazard (to take the two extremes). So replies to table 4 of the questionnaire are now examined and it is noted that the institutions who have (i.e. 75 per cent or more) a well defined procedure regarding feedback information from students are 4, 15, 16. Institutions 13 is in the next category of 'few rules, generally accepted and expected procedure' (i.e. 75 per cent or more). The majority (60-74 per cent) of institution 10 are in the same category. For the remaining institutions no one

category has a significant majority and hence it is assumed that no asked for viewpoint is representative of such institutions..

Institutions common to the highest classifications for the "student" section of tables 3 and 4 of the questionnaire are 15 and 16. Institution 4 is next since although it has both high classifications they are only a majority viewpoint for that institution in table 3. Similarly with institution13, but it also has a "middle" classification in table 4. Obviously institution 10 is next because of its majority representation. The only remaining definite viewpoint is that of institution 6 in the haphazard category. Hence a rank ordering of institutions in response to their replies to tables 3 and 4 would be: (15,16); (4); (13); (10). (2, 3, 5, 7, 11, 12) - no representative agreement. If an institution does not appear in the ranking it means that there was no representative agreement and it could not be classified even under very coarse groupings. In one sense it could be assumed that such institutions are very ineffectual as in most cases the divergences of viewpoint are at opposite ends of the scale. For example, if one half of an institution reports that feedback of teaching information within the institution is good and the other half reports the opposite, then from the viewpoint of effectiveness the institution would appear to be rather worse then neutral. Nevertheless in such cases the institution would be classed in the neutral category of "no representative agreement".

2. ANALYSIS OF RESULTS

QUESTIONNAIRE-DEPARTMENTAL PROCEDURES 1

2.1 Teaching as a departmental goal

(Questionnaire Section A)

That the provision of good teaching could be regarded as an important departmental goal was, as originally stated, an assumption.

Before looking at factors affecting this goal it was obviously necessary to test the assumption. This was done by asking respondents to complete Table 1, where they had the opportunity of indicating how important the activity of teaching was to their department.

All departments, except for two, classed teaching as either of very great importance (1) or of considerable importance (2). For I*14 this view was a majority one for I 3 there was an equal division between (1) or (2) and 'of moderate importance' (3). Thus the assumption was valid.

2.2 Teaching: Specialisation Staff/Subject Compromise

(Relevant Proposition: D. L. Questionnaire, Sections B, C)

For two institutions, 5, 18, the subjects taught represented either a compromise or to some extent a compromise between subjects and staff available.

At the other extreme this definitely presented no problems to institutions 7, 11, 15, 16. This was also true for the majority of respondents in institutions 2, 4, 6, 10, 12, 14. Institutions 3 and 13 seemed equally divided between the extremes.

Table a

Here the criterion was total number of subjects per institution rather than the proportion of respondents. Since these were single person dependents the 50% proportion replying limit was not adhered to.

Institutions that thought it was 'very necessary' or 'necessary' to have extra specialised staff for 3 or more subjects currently taught were 5, 11, 12, 16.

For 2 subjects, institutions 2, 3, 6, 11, 13, 14, 18
For 1 subject, institutions 7, 10, 15

Table b

Institutions that thought it was 'very necessary' or 'necessary' to have 3 or more additional subjects taught were 4, 5, 18.

* I denotes Institution

For additional subjects, Institutions 2,3, 7, 12, 13, 15, 16, 18 and for 1 additional subject, Institutions 1, 6, 10, 11, 14.

Table c

Institutions that thought it was 'necessary' or 'very necessary' to remove 1 or 2 subjects were 4, 7, 10, 11, 13, 14.

CONCLUSION

Rank ordering of Institutions on the general criteria that high teaching effectiveness included having sufficient specialist staff available, so that the choice of subject matter was independent of teaching personnel.
Table 2- (5, 18); (3, 13); (2, 4, 6, 10, 12, 14); (7, 10, 15)
Table a - (5, 11, 12, 16); (2, 3, 6, 11, 13, 14, 18); (7, 10, 15)
Table b - (4, 5, 18)

2.3 Decision Making-Rules, Role Occupants

(Relevant proposition DRL. Questionnaire Sections D, E)

It was decided not to analyse the replies to this question as apparently the phrase 'decisions associated with staff allocation to your department' was open to interpretation as 'should teach what amongst existing staff members'. Alternatively the original could have referred to decisions at a National rather than Institutional level.

No ambiguity had been reported here during the pilot study and the questionnaire had been printed when the matter was raised at the final briefing for chief Investigators. Notwithstanding a written explanatory addendum and an undertaking by the investigators to ensure that the point was made clear, some confusion was present.

2.4 Teaching - Rewards, Sanctions, Feedback Sources

(Relevant propositions C, CQI, SA, NE; Sections referred to F, G, H, J)

Table 3

Interestingly for all institutions the head of department played no role as source of information regarding teaching performance. This was also true for 'other faculty'. The most important source for most institutions was 'self awareness", all institutions except I 13, reporting use of this source as 'very much or often'. Institutions 2, 12, 15, 16 also used the same category for students.

Table 4

The only sources, with well defined procedures was that of 'student feedback' for the institutions 4, 15, 16 and personal awareness for I 12. All institutions reported the use of other faculty as 'haphazard, very informal'. I 13 reported the middle category (generally accepted procedure)

for the student source.

Table 5

For most institutions the two principal sources of positive rewards (i.e. of 'greatest or considerable' importance) were students and self opinion, yet as Table 4 indicated feedback from students was generally ill-defined.

Similarly Institutions 5, 7, 10, 18 reported the head of department as being of 'considerable or greatest importance' yet for the majority of members of these institutions contact was a 'haphazard, very informal occurence'.

Table 6

These results were similar to those for positive rewards although rather more polarised, students and head of department being the two sources of 'greatest or considerable'. Here the head of department assumed a more important role, i.e. for institutions 2, 6, 7, 10, 14 and 18 he was also of 'great or considerable importance', for institutions 11, 16 he was of 'considerable or moderate importance'- a classification which was also used by the majority of institutions 'Other faculty', too, had more weight as a source of negative rewards. For Institute 2 they were of 'great/considerable importance' and for institutions 4,5, 6, 7, 10, 11, 14, 16 they were in the 'considerable/moderate' classification.

SOME CONCLUSIONS

Rank ordering of Institutions on the general theme that a well used source of information regarding teach performance should have well defined procedures.
(15, 16); (4); (13); (10); (2, 3, 5, 7, 11, 12)
Rank ordering of Institutions was based on the assumption that approval, praise, etc. is the most effective and positive sanction when it originates from an important source, using well defined procedures; with importance of source being the first consideration.

+ Students: - (4, 15, 16); (2,3, 7, 11, 12, 14); (10); (6); (3)
+ Head of Department: - Institution not ranked but Institutions 5, 7, 10, 18 would have a low effective rating as they combine a very important source with haphazard information flow.
+ Other Faculty: - Same comments as Head of Departments for Institutions 4, 5 with a ranking as (1, 2)
+ Self Awareness: - (12); (13); (4, 18)
- Students: - (4, 15, 16); (13); (3, 5)
- Head of Department: - Same comments as for positive rewards applying to Institutions 2, 6, 7, 10, 14, 18
- Other Faculty: - (18); (3, 4, 5, 7, 10, 11, 14, 16); (2)
- Self Awareness: - (12); (13); (4); (18)

(+ = Positive rewards; - = Negative rewards)

2.5 Research

That the carrying out of good research could be regarded as an important departmental goal was, as originally stated, an assumption. Before looking at factors affecting this goal it was obviously necessary to test the assumption. This was done by asking respondents to complete Table 7, where they had the opportunity of indicating how important the activity of research was to their department.

The majority of institutions classified research as either of very 'great importance' or of 'considerable importance'. These institutions were 2, 3, 4, 5, 6, 7, 14, 15, 16, 12. (For Institution 12 this was a majority viewpoint). For the remaining institutions the inclusion of the category of moderate importance to those above was necessary. These institutions were 10, 11, 12, 13, 18.

Thus the assumption was valid.

2.6 Decision Making

(Relevant proposition DRL. Questionnaire Sections L, M)

Decision making: Except for Institutions 18, 14 all institutions replied that the decision to allocate capital equipment funds was made by committee.

Rules: Only for Institution 18 were there little or few rules or established criteria. For institutions 6, 7, 13, 14, 16 there were 'some rules' and only for Institution 10 were there 'many rules'. For other institutions there was no clear agreement.

Decision making rules: Although there were one or two dissenting individuals institution viewpoints could all be expressed as either, decisions were almost invariably made or they were 'on average' made by the occupants of the official decision making roles or posts.

CONCLUSION

There was insufficient range of replies to allow a rank ordering for the decision making role issue. (Possibly an interview would have produced different results here).

On a decision making rule basis, the rank ordering is: Institutions (10); (6, 7, 13, 14, 16); (18).

2.7 Research - Rewards, Sanctions Feedback Sources

(Relevant propositions CQI, SA, NE. Questionnaire Sections N, O, P, Q)

Table 8

With the exception of Institution 18, no institution could be

classified as regarding research students as a frequent source of information regarding research ability (although most institutions had individuals who thought they were). Institutions 3, 5, 10, 12 thought they were rarely or practically never used. For most institutions the modal reply for head of department was 'sometimes' with the exception of Institution 18 for which the head of department was often used as a feedback source. Institutions placing other faculty in the 'very much/other' categories were 2, 10, 5, 12, 13 and 'sometimes' for Institutions 7 and 11. All institutions reported 'personal awareness' in the 'very much/often' categories. These same categories were used by institutions 3, 4, 5, 10, 12, 13, 14, 15, 16 for the use of 'published material'. Other sources were not of significance.

Table 9

Institutions 7, 13, 14, 15 regarded research students as a very haphazard source of information. The same was true for head of department for Institutions 3, 6, 10, 11, 12 with no institution regarding use of this source as well defined; and institutions equally divided between 'few rules' and 'haphazard' were 2, 7, 13, 15, 16. 'Other faculty' were classed as a 'haphazard' source of feedback information by institutions 3, 4, 5, 6, 7, 10, 16, 18, as 'few rules' by Institution 15 and institutions equally divided between 'few rules and haphazard' were 2, 11, 12, 13, 14. 'Personal awareness' had a 'few rules' classification from institutions 11, 13, and 14 and an equal division between 'few rules' and 'haphazard' from institutions 4, 7, 10, 12, 15; Published Material was a 'well defined' source for Institutions 3, 4, 10, 14 and one with 'few rules' for institution 7.

SOME CONCLUSIONS

Rank ordering of institutions on general criteria relating to the proposition that a well used source of feedback information regarding personal research ability should have well defined rather than haphazard procedures.

(a) Research Students: Not a well used source
(b) Head of Department: (18); (2, 7, 13, 16); (3, 6, 10, 11, 12)
(c) Other Faculty: (11); (12, 13); (7); (5, 10)
(d) Personal Observation: (4, 10, 7, 12, 15); (11, 13, 14)
(e) Published Material: (3, 4, 10, 14); (7); (5, 12, 15, 16)

Table 10

Here there was a strong and varied response as to what constituted important rewards regarding research. Institutions 2, 3, 4, 5, 6, 7, 10, 11, 12, 13 and 14 gave 'published material' as 'source of the interest or considerable importance'. 'Personal Observation' received the same classification from institutions 4, 10, 11, 13, 14, 15, 18. Institutions 2, 7, 10, 18 also gave this same classification of 'utmost or considerable importance' to the head of department. Similarly for Institutions 2, 5, 7, 12, 14, 16 for other faculty. Research students were not significant as a source except for institutions 4, 7 who regarded them as 'just about important' or of 'moderate importance'.

Table 11

Here the spread of answers for negative rewards such as disapproval, complaints etc. associated with research ability was similar to that for positive rewards although there were significant differences. Replies were mostly polarised into the two top categories of importance. Thus the following sources were classed either as 'of the utmost importance' or of 'considerable importance': 'Published Material' by institutions 6, 3, 7, 10, 11, 4, 12, 14, 15, 16; 'Personal Observations' by institutions 2, 3, 4, 5, 6, 7, 10, 11, 13, 14, 15, 16, 18; 'Other Faculty' by institutions 7, 12, 16; 'Head of Department' by institutions 2, 6, 7, 10, 18. Research Students were regarded as of 'no importance'.

SOME CONCLUSIONS

Rank ordering of Institutions based on the assumption that rewards for research performance are more effective when they originate from an important source using well defined, as opposed to haphazard procedures.

(a) Positive rewards, other faculty: (15, 12, 2, 14); (5, 7, 16)
(b) Positive rewards, head of department; (18); (2, 7); (10); (6, 11, 12)
(c) Positive rewards, published material: (3, 4, 10, 14); (7); (6, 11, 12); (5, 13)
(d) Negative rewards, head of department: (18); (2, 7); (6, 10)
(e) Negative rewards, published material: (3, 4, 10, 14); (7); (6, 11, 12); (5, 13)

2.8 Communication - Head of Department and Departmental Peers

(Relevant propositions C, CV, CH). Questionnaire Section R

Tables 12, 13

In the analysis of the results of Tables 12 and 13, the categories which contain the modal replies of the respective institutions are taken as representative of the institution. The results have been summarised by overleaf by reproducing the original tables and inserting the institution numbers in the categories representing their 'modal'* replies.

* In fact a more restricted 'mode' was used. Instead of the most frequent category the criterion was that category which contained at least 50 per cent of the replies.

Table 12. Interation with HEAD OF DEPARTMENT

Topic	Average frequency of interaction with HEAD OF DEPARTMENT					
	Daily	Weekly	Monthly	Termly	Yearly	Almost Never
Syllabus/Timetable			15, 18	2, 6, 13, 14, 16	5, 7	12
Student Progress		18	4, 6,	7, 13,		12
Quality/Progress of Lectures		18	4,	16	14	3, 7, 11 12,
Current Research *		16	18	2, 4, 13	10	12

Table 13. Interaction with DEPARTMENTAL PEERS

Topic	Average frequency of interaction with DEPARTMENTAL PEERS					
	Daily	Weekly	Monthly	Termly	Yearly	Almost Never
Syllabus/Timetable	4	2, 18	13		5,	
Student Progress		4, 16, 18	6, 13, 14,	2, 7		
Quality/Progress of Lectures		4, 18	13, 16	2		
Current Research *		4, 14	10, 13			

* Nature of work, progress, changes in, etc.

2.9 Conclusions

The tables themselves give a rough guide to the rank order of institutions based on the proposition that organisations which have a high degree of communication are more likely to have a high degree of effectiveness than organisations which have a low degree of communication.

The institutions shown above are those whose members agreed on one category more than any other (see footnote). Obviously a wide range of replies, with an even dispersion of frequencies, would mean that none of the above categories could represent the average communication pattern of an institution, and these have been omitted.

REFERENCES

1. Blau, P.M. Heydebrand, W.V. Stauffer, R.E. — "The Structure of Small Bureaucracies" A. S. Rev. Vol. 31 (April 1966) P. 186.

2. Caplow, T. McGee, R.J. — "The Academic Market Place", Basic Books 1958.

3. Chandlerk, A.D. — "Strategy and Structure, M.I.T. Press, 1962.

4. Corson, J.J. — "Governance of Colleges and Universities", McGraw-Hill, 1960.

5. Etzioni, A. — "Authority Structure and Organisational Effectiveness", Administrative Science Quarterly, June 1959, p.43-67.

6. Etzioni, A. — "A Comparative Analysis of Comlex Organisations", Free Press, 1961.

7. Hall, R.R. — "Organisations: Structure and Processes", Prentice-Hall, 1972.

8. Marcron, S. — "The Scientist in American Industry", Princeton, 1960.

9. Price, J.L. — "Organisational Effectiveness", Irvin Dorsey, 1968. (Generally referred to throughout. For propositions used see pp. 16, 55, 60, 138, 145, 107).

10. Rourke, F.E. Brooks, G.E. — "The Managerial Revolution in Higher Education", James Hopkins Press, 1966, pp. 158-159.

11. Gross, E. — "Universities as Organisations: A Research Approach", in American Sociological Review, pp. 518-544.

IV/ GENERAL CONCLUSIONS

In Mr. Lars Thulin's preliminary evaluation of this report he pinpointed four critical questions against which this work should be judged:

(a) What did we want ?
(b) What did we get ?
(c) Was it worth it ?
(d) Where do we go from here ?

We can draw our conclusions under these four headings.

(a) What did we want ?

Our first requirement was to create, to validate,and possibly revise a methodology which would help to establish measures of administrative effectiveness and structure. We found, once we started serious research, that the project was more difficult than we had at first sight envisaged. This was not only because of its novelty, which meant there was no previous work to which reference could be made, but also because of the difficulty of obtaining on-going data. It would be wise to emphasize that we did not anticipate the present project yielding conclusive results. At this stage the emphasis was upon the creation of a valid methodology.

In order to accomplish this aim two parallel approaches were tried. The first one was to use the established guide lines of behavioural science to develop an understanding of the goals towards which Universities are perceived to work. This led to derivation of ranking measures. However, this approach tended to be an academic one and kept within the established methodology of the social sciences. Such an approach, by acknowledging the limitations of any methodology concerning the behaviour of people, meant that it did not lead either to a useful - in an applied sense - classification of structure, or of quantitative measures of effectiveness.

The other approach was a systematic analysis which has led, we suggest, towards the establishment of a practicable and profitable methodology.

(b) What did we get ?

As can be seen from (a), the main burden of these conclusions will draw upon the statistical results of the Systems Approach, although we should emphasize that useful quantification is much more powerful when placed within the fabric of behavioural understanding. Notwithstanding the reservations with which we started the study, we found that the Systems Approach worked well and produced concrete measures and measuring techniques upon which comparative assessments could be rigorously based. (See II 8.) Also, it should be noted that there remains some analysis to be carried out on the survey questionnaires which should produce interesting additional results.

(c) Was it worth it ?

The budget for this project was £4,000 which is only a small part of the administration costs of any one single university. We feel that the results have more than justified this modest investment. Moreover, the stimulation of the interest of administrators in such a large number of international universities has ensured that the seeds of further research should fall on fertile ground.

(d) Where do we go from here ?

Proposals for further research along the lines of the Systems Approach are given in II 9. These, together with the rest of the report itself and the material in the Annexe, should enable interested parties to continue the methodology. In particular, we would hope that the "interested parties" would comprise a research team and a set of co-operating and co-ordinated institutions. The research team ideally would contain at least one experienced administrator and at least one statistician. The institutions themselves need not come from different countries, since the methodology proved capable of isolating differences within countries.

Such interested parties would then repeat the basic program of the Systems Approach (see II 2) in the light of the amendments and amplifications detailed in II 9. We feel that such a project will yield original, interesting, and exciting results.

However, commitment to further research need not be so total, and several more modest proposals are offered at the end of II 9. For instance, much would be gained from a broader circulation of Departmental Procedures 2 and the Administrative questionnaires as they now stand. In particular, variations between Departments and Faculties within each institution could be investigated in addition to inter- institutional comparison.

Regarding the Behavioural Approach, we suggest that in principle the methodology is a sound one, but its application needs further work before its direct utilization can be realized. An essential feature of this approach is that it demands acceptable criteria of effectiveness and here it is suggested that further work would involve a panel of administrators who would provide those criteria. The advantages of this would be twofold: the criteria would, presumably, be at a very applied level and in addition the need to appeal to non-university organizational theorists for justification would be reduced.

In the light of the experience gained in this pilot project, we feel confident in asserting the viability and worth of continued research in the field, at least along the lines established by the Systems Approach.